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**TIER ONE:
PRELIMINARY DRAFT
ENVIRONMENTAL IMPACT STATEMENT**

**PRELIMINARY DRAFT
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**Realignment of Mountain Home Air Force Base
and Proposed Expanded Range Capability**

December 19, 1989

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1.0 PURPOSE OF AND NEED FOR THE ACTION

1.1 INTRODUCTION

1.1.1 The Commission on Base Realignment and Closure

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The Defense Secretary's Commission on Base Realignment and Closure (Commission or CBRC) was chartered on 3 May 1988 by the Secretary of Defense to recommend military installations within the United States, its commonwealths, territories, and possessions for realignment and closure. Subsequently, the Base Realignment and Closure Act (Public Law 100-526, 24 October 1988) endorsed the Secretary's Commission and required the Secretary of Defense to implement its recommendations unless he rejected them in their entirety or the Congress passed (and the President signed) a Joint Resolution Disapproving the Commission's recommendations.

The primary criterion used by the Commission for identifying candidate bases was the military value of the installation. However, cost savings were also considered, as were the current and projected plans and requirements for each military service. Lastly, the Commission focused its review on military properties and their uses, not military units or organizational/administrative issues.

On 29 December 1988, the Commission recommended the realignment and closure of 145 military installations. Of this number, 86 are to be closed fully, 5 are to be closed in part, and 54 will experience a change (either an increase or decrease) as units and activities are relocated.

On 5 January 1989, the Secretary of Defense approved those recommendations and announced that the Department of Defense would implement them. The Congress did not pass a Joint Resolution disapproving the recommendations within the time allotted by the Act.

Therefore, the Act now requires the Secretary of Defense, as a matter of law, to implement those closures and realignments. Implementation must be initiated by 30 September 1991, and must be completed no later than 30 September 1995. Thus, this environmental impact statement (EIS) addresses only implementation; realignment decisions are by law final.

As part of the realignment and closure decisions, the Commission determined that the Tactical Air Command (TAC) assets at George Air Force Base (AFB), California, should be relocated. Mountain Home AFB (MHAFB), Idaho, was selected to receive the majority of the George AFB assets. The Air Force is preparing this EIS to examine and evaluate the impacts of implementing the decision to relocate the aircraft, equipment, and personnel to MHAFB. This EIS also assesses the impact of a proposed expanded range capability. The Council on Environmental Quality (CEQ) has confirmed the

requirement for the Air Force to assess the impact of a proposed expanded range capability as part of the same EIS process as the base realignment.

Although this EIS addresses the impacts of both the realignment and the proposed range expansion, realignment of forces at MHAFB is not contingent upon an expansion of MHAFB's air-to-ground bombing and gunnery range, the Saylor Creek Range (SCR). However, the proposal for an expanded range capability is designed to improve the efficiency of training opportunities and avoid either costly deployments or elimination of some training operations. The Commission on Base Realignment recognized the preliminary range expansion proposal and commented in their report that the military services should take steps to combine, consolidate, and expand airspace and training ranges to ensure a combat capability for the future.

1.1.2 Purpose and Need

1.1.2.1 Mountain Home Air Force Base Realignment

The Commission recommended transfer of assets from George AFB to MHAFB involving 94 F-4E and G electronic combat aircraft and approximately 3,500 personnel. To accommodate the additional aircraft and personnel at MHAFB, the 366th Tactical Fighter Wing (TFW) at MHAFB will transfer 35 F-111A aircraft and approximately 1,600 personnel to other units. This will result in a net increase of 59 aircraft operating from MHAFB. The realignment of MHAFB will enhance command and control of electronic warfare operations by consolidating F-4G electronic combat and surface-to-air suppression functions with EF-111 electronic jamming air defense suppression aircraft (described in Appendix A) and will increase mission effectiveness at a reduced cost. The nature of the missions and combat roles assigned to the F-4s being transferred to MHAFB will require more range time per aircraft than for the departing F-111As. It is expected that the training requirements for the F-4s alone will nearly triple the annual usage of the SCR.

1.1.2.2 Proposed Expanded Range Capability

Background

The SCR, located in southwestern Idaho, is one of TAC's smallest air-to-ground bombing, electronic combat, and gunnery ranges. The SCR has historically supported the training needs of units located at MHAFB, the Idaho Air National Guard (IANG) stationed in Boise, Strategic Air Command (SAC) units based in the northwest, and TAC units based at Nellis AFB, Nevada and Cannon AFB, New Mexico. Increasing activity of current users as well as increased demand as a result of the Base Closure and Realignment Act will result in requests for additional access to the range.

The SCR has a current effective capacity of 4,100 range periods per year. The range has a limited inventory of electronic combat equipment and cannot accommodate complex tactics, escape maneuvers, weapon deliveries, and strike force composition that must be applied in realistic combat training exercises. In addition, the 12,200-acre impact area is among the smallest in the TAC inventory, and no live ordnance can be dropped.

In early 1984, the 366 TFW at MHAFB recognized a need to expand the SCR to accommodate the training shortfall for the F-111 mission. A broad-based, long-range internal evaluation of the greater Saylor Creek vicinity was prepared to determine the potential for an expanded capability to serve aircraft systems requirements. Preliminary results indicated that there is substantial feasible potential; thus, the Air Force began a formal effort to develop an expansion proposal and alternatives. The Air Force planned to begin the public scoping process under NEPA in early fall 1989.

While the Air Force was conducting the preliminary work on the range expansion proposal in January 1989, the Secretary of Defense's Commission recommended the MHAFB realignment and highlighted the need for large tracts of land for an expanded national range complex. A proposed expanded range capability would enable the Air Force to meet its current and future training requirements.

Need for an Expanded Range Capability

The training of tactical fighter aircrews, using the latest operational weapons systems and tactics, is the foundation upon which the Air Force builds, maintains, and ultimately achieves combat readiness of its operational fighter forces.

Air Force bombing range complexes provide the only peacetime arena for aircrews to practice combat training. A range and its airspace must be sufficient in scope and depth to allow aircrews to train daily with the right mix of operational weapons, tactics, and electronic combat systems. These specialized ranges provide a unique simulated combat training environment in which aircrews can learn how to most effectively use their airborne weapons systems to successfully attack assigned targets.

It is Air Force policy for all bombing range complexes to be planned, developed, maintained, and improved consistent with their unique potential to provide realistic environments for training and testing. Realism in both threat and target design is important for today's range complexes since they represent the only peacetime opportunity for aircrews to practice necessary combat skills with the actual weapons systems and tactics they would employ in combat. It is essential for combat readiness that tactical fighter aircrews train as they will fight.

Optimizing the utility of individual range complexes is best achieved by tailoring them to the operational mission of the local unit. It requires considerable planning to acquire suitable airspace and

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real estate. The Air Force coordinates with cooperating federal and state agencies and the public to ensure multiple use can be achieved whenever possible. The objective is to maximize local mission training requirements within the available range environment and minimize the impact on the public.

Safety considerations for the public and the military are paramount in range complex design. Aircrew safety is provided through central range control and flight pattern design. Civilians and their property are provided maximum protection through careful planning and ongoing review and analysis of range procedures.

Range complex land and airspace management are coordinated by the Air Force with all other users. This minimizes conflicts between a specific type of public use and Air Force mission requirements. In the case of the SCR, grazing is the primary public land use. Grazing activity for the SCR is managed by the Bureau of Land Management (BLM) based on Public Land Orders (PLO) 1027 and 4092. In fact, the majority of the SCR, approximately 97,000 acres of the total 109,000 acre withdrawal area, is available for multiple use. Public access is not restricted by the Air Force. For safety considerations, a small portion of the withdrawal area at the SCR, the 12,000-acre impact area, is fenced and designated as "exclusive use" for the Air Force.

After realignment, the mission of EF-111 and F-4 aircraft based at MHAFB will be defense suppression through electronic jamming of enemy air defense radars by EF-111s; and destruction of enemy surface-to-air radars and missile sites by F-4E/Gs. Electronic combat training for MHAFB EF-111s and F-4s will require a range that electronically and physically replicates an enemy air defense and target array to include both electronic emitters, ground targets, and the land and airspace around them.

With the arrival of the F-4s at MHAFB, there will be a need for an expanded range capability to allow for more electronic combat threats and targets, as well as a need for more practice ordnance areas and live ordnance areas. To optimize Air Force training requirements, an expanded range complex should be tailored to give EF-111 and F-4 aircrews a defense-in-depth visual and radar signature look of a high-intensity battlefield. This requires two sets of geographically separated enemy lines of defense and a variety of deep interdiction targets. It also calls for numerous electronic combat threats and state-of-the-art electronic scoring instrumentation throughout the simulated battlefield.

It is possible that future enemy weapons systems, new tactical missions, or new aircraft may require further modifications of current Air Force bombing range complexes, such as the SCR. The Air Force needs to build as much flexibility as possible into range design today, to prepare for the intermediate and long-term challenges of the future.

A more detailed discussion of operational requirements for an expanded range capability is provided below.

Proposed Expanded Range Requirements

ELECTRONIC COMBAT CAPABILITY. Electronic combat is a fundamental part of the Air Force mission. Experience and studies such as the Red Baron reports from the conflict in Southeast Asia indicate that if aircrews are to be effective in combat against increasingly capable defenses, they must be thoroughly trained in the use of state-of-the-art electronic countermeasures and sophisticated ordnance, as well as precision teamwork among several aircraft. They must be able to find, attack, or penetrate a diverse array of enemy defense systems in a fluid combat/threat environment. Most of these threats are supported by various types of radar, optical, or infrared guidance systems. To survive, aircrews require regular practice using tactics, weapons, and electronic countermeasures. The existing electronic combat range capability at the SCR cannot accommodate the electronic combat mission of the F-4Gs arriving from George AFB, the EF-111 aircraft stationed at MHAFB, or other short-term users.

AIR-TO-SURFACE RANGE CAPABILITY. The current capacity of the SCR is approximately 4,100 range periods per year¹. With perfect scheduling and 100 percent utilization of available days (250 days per year), there should be a total of 6,000 range periods available per year on the present range. However, experience has shown that 63- to 68-percent effective utilization is realistic, which means that between 3,800-4,100 effective periods can actually be used. This reduced capacity results from unflyable weather at the range or base, aircraft problems causing cancellation of the flight, ineffective student training, unacceptable bombing scores, unscheduled non-flying days (i.e., exercises, higher headquarters-directed no-fly days, safety days) and other wing "down days."

The projected training requirements (after base realignment) are for approximately 4,600 conventional range periods and approximately 9,200 tactical and electronic combat range periods. These include current and anticipated SCR users. Thus, the current capacity of the SCR (4,100 range periods) is much smaller than the capacity needed to accommodate the projected range requirements after realignment (13,800 range periods). Without an expanded range capability, there would be a shortfall of 9,700 range periods.

Combination of Conventional and Tactical/Electronic Combat Ranges

To meet Air Force training requirements (approximately 13,600 range periods) following the MHAFB realignment, a combination of one conventional and four tactical/electronic combat ranges (within a larger complex) will be needed. The five-range requirement results from both the stated requirements above and historical data on range use throughout the Air Force. All five ranges would support practice training ordnance, and some areas of the tactical range complex would be needed for live ordnance training.

1. When calculating actual usable range periods, the present range is considered a conventional range. Appendix B contains definitions of conventional and electronic combat ranges.

A conventional range is designed for teaching and practicing basic bombing techniques. Because a conventional range is manned during use, it can be used 250 days per year, though other factors as described above result in a fewer number of days being effectively utilized. The current SCR is considered a conventional range although it is also used for tactical range purposes. Due to size limitations, it cannot be used for both at the same time. A tactical/electronic combat range is constructed to allow aircrews to sharpen skills learned on a conventional range, in a realistic environment. The present range does not provide sufficient realism when used as a tactical range. A tactical/electronic combat range can be used 190 days per year. The lower utilization rate (compared to a conventional range) is due to periodic closure for maintenance and multiple use. As a result, the Air Force projects a need for four tactical/electronic combat ranges. With one conventional range and four tactical/electronic combat ranges, the Air Force can meet its needs with some surplus. This surplus could be used to accommodate additional, unforeseen requirements and allow multiple land use. The number of conventional and tactical/electronic combat ranges needed compared to the number of range periods available now and after base realignment is shown in tables 1.1-1 through 1.1-3.

Table 1.1-1

**Range Capability
(Stated in Range Periods)**

	<u>Needed</u>	<u>Available</u> ¹
Now	950 conventional + 950 tactical/electronic combat = 1,900	4,100 total
Post-realignment	4,568 conventional + 9,284 tactical/electronic combat = 13,852	4,100 total

Note: 1. The SCR conventional and tactical/electronic combat ranges are currently co-located. When one of the ranges is being used the other is not available. The total usable annual range periods at the SCR conventional range is approximately 4,100 range periods.

Table 1.1-2

Requirement for One Conventional Range

Capability	4,100 range periods per year
Need	4,568 range periods per year
Difference	(468) range periods per year ¹

Note: 1. Training associated with the 468 annual range period shortfall could be completed on a scoreable tactical range without substantially impacting aircrew training. Doing so allows the Air Force to reduce costs by not building a second conventional range and reducing the long-term costs of hiring personnel to man a second conventional range.

Table 1.1-3

Requirement for Four Tactical/Electronic Combat Ranges

Capability	2,900 range periods per year multiplied by 4 ranges	= 11,600 ¹
Need	8,963 range periods per year plus 468 conventional range periods per year (from above)	= 9,431
Difference		= 2,169

Note: 1. The total usable annual range periods at the SCR tactical/electronic combat range is approximately 2,900. The difference in use rates between conventional and tactical/electronic combat ranges is due to fewer use days on a tactical/electronic combat range because of clean up, multiple use, and other factors.

RANGE SIZE. An expanded range complex should be designed to meet post-realignment, immediate and long-term Air Force needs. Consequently, the size of an expanded range capability must approximate the size of a representative high-threat battlefield as shown in figures 1.1-1 and 1.1-2. As a result, a range size of the magnitude of 62 nautical miles (NM)² to 110 NM by 50 NM is needed to provide aircrews realistic training for defense in depth/layered defenses they would encounter in a possible conflict. Such a range would also provide flexibility for practicing tactics such as multiple run-ins with supporting aircraft. Such tactics cannot be adequately practiced on the SCR, which consists of a ground impact area of approximately 3 by 6 NM. This size physically limits the number of aircraft (one flight of up to four aircraft) that can participate in a training event.

The size of the SCR also limits the potential range design and imposes constraints on training (e.g., restricted range bombing patterns), and severely degrades realism. As a result, aircrews attack the same targets, in the same location, from the same direction, in the same ways, day after day -- a

2. One nautical mile = 1.15 statute mile.

← 150 NM →	← 2-10 NM →	← 10-50 NM →	← > 50 NM →
Staging Area (Composed of adjacent MOA and MTR Airspace)	FEBA* Target/Threat Area	BAI** Target/Threat Area	Deep Interdiction/Strike Target/Threat Area
	*Forward Edge of the Battle Area	**Battlefield Air Interdiction	

Figure 1.1-1

SIZE REQUIREMENTS FOR A RANGE SIMULATING A HIGH-THREAT BATTLEFIELD

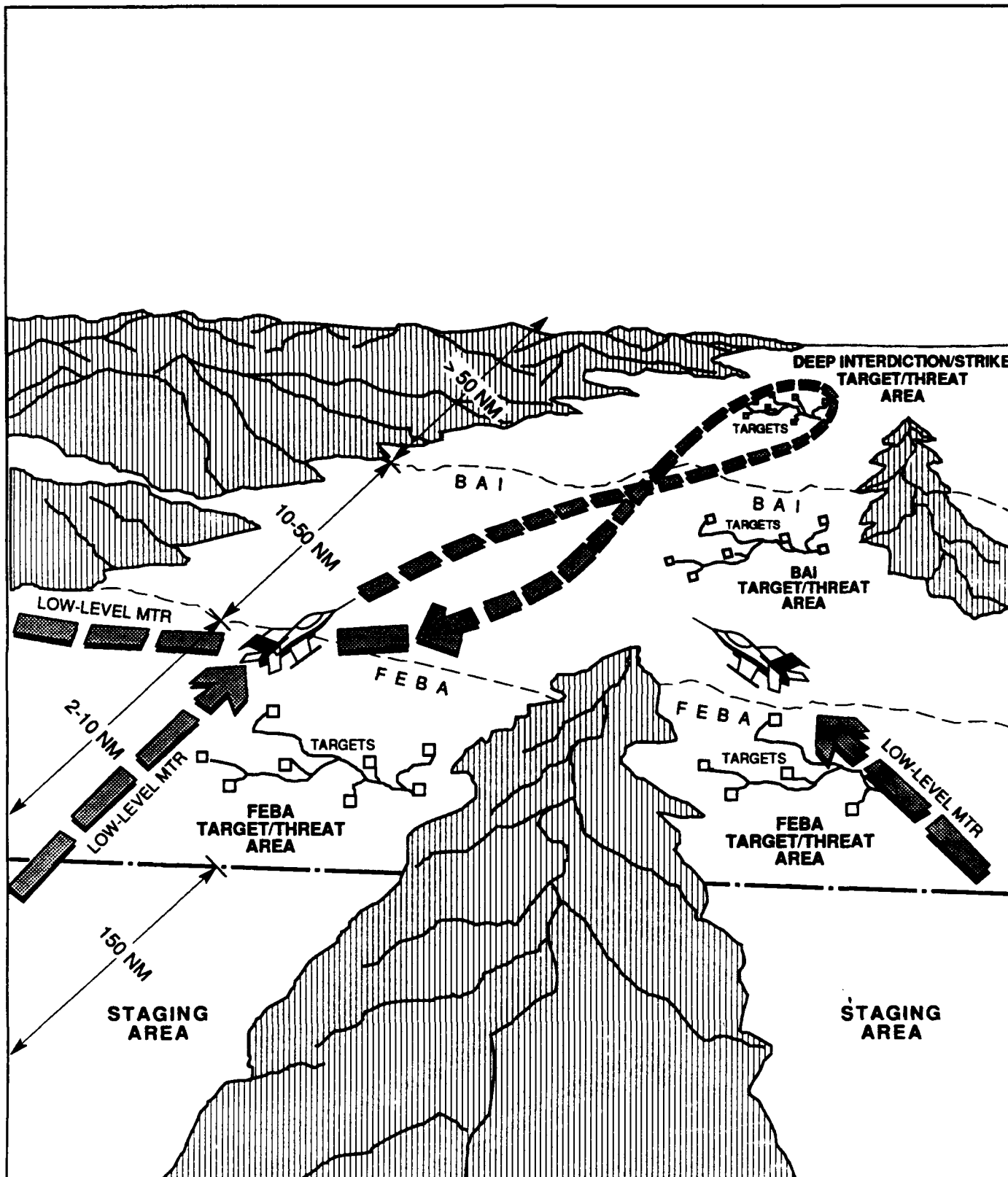


Figure 1.1-2

SCHEMATIC DIAGRAM OF TRAINING ON A
SIMULATED HIGH-THREAT BATTLEFIELD

situation alien to a real combat environment. Such an unrealistic environment creates bad habit patterns that could be carried into combat.

AIRSPACE. Airspace is needed for practicing basic aircraft maneuvers, advanced air-to-air tactics, standoff electronic combat, or staging for composite force training. To be effective, this airspace must be contiguous with an expanded range complex to allow standoff electronic warfare training and marshalling of composite forces. To maximize training and replicate the airspace previously available to the F-4s at George AFB, it should extend from ground level to unlimited altitude and be at least 150 by 50 NM. Further, changes to military training routes (MTRs) may be needed for accessing a range with expanded capability.

Airspace of approximately 150 by 50 NM is required to provide effective tactical air-to-air intercept, basic fighter maneuvers (BFM), and dissimilar (unlike aircraft) air combat training (DACT). This airspace should extend upwards from 100 feet AGL. F-4 student aircrews need adequate time and distance to learn how the F-4 radar system operates, analyze the intercept geometry involved between the F-4 and the target aircraft, maneuver the F-4 to successfully complete the tactical intercept, and make appropriate adjustments necessary to counter changes in geometry. When two fighter aircraft are flying toward one another at 500 mph their combined closing speed is 1,000 mph. Starting an intercept at 40 NM away from the target aircraft provides the aircrew with approximately 2 1/2 minutes to complete all of the necessary procedures for successful completion of the intercept.

The F-4 achieves optimum flight performance between ground level and 25,000 feet above mean sea level (MSL). The 100 feet AGL to flight level (FL) 290 altitude separation provides adequate vertical airspace to effectively practice three-dimensional aircraft maneuvering. Currently, the 35 TFW schedules over 7,500 30-minute periods into four military operating areas (MOAs). Each MOA at George AFB is approximately 40 by 20 NM and all extend from ground level to 29,000 feet MSL.

MHAFB currently schedules over 1,000 30-minute MOA periods per year. The 35 TFW and 366 TFW will require airspace to support approximately 8,500 MOA periods. The present Owyhee/Paradise MOA is approximately 80 by 70 NM. Altitudes range from 100 feet AGL to 14,500 feet MSL for Owyhee MOA in Idaho and 14,500 feet MSL to 18,000 feet MSL for Paradise MOA in Oregon, Idaho, and Nevada.

The current airspace configuration will seriously affect the quality of air-to-air tactical training currently achieved by F-4 aircrews. Several changes to the current airspace configuration are required to maintain current levels of F-4 aircrew air-to-air training.

LIVE ORDNANCE AREAS. An expanded range should contain live conventional ordnance target areas. Various types of live ordnance must be employed by F-4s and other aircraft to provide combat realism

and reinforce skills of preparing for and executing a live ordnance delivery mission. Live ordnance training is presently not allowed on the SCR. Typical live conventional munitions to be used include 500-pound (lb) general purpose bombs (Mk 82s), 750-lb general purpose bombs (Mk 117s), 1,000-lb general purpose bombs (Mk 83s), 2,000-lb general purpose bombs (Mk 84s), cluster bombs (CBU 52/58), 20-mm cannon rounds, air-to-ground missiles (AGM 45, 65, 88), and illumination flares (LUU 2).

SUPERSONIC FLIGHT OPERATIONS. An expanded range capability and associated airspace must support supersonic flight. Tactics and aircraft handling characteristics dictate flight within the transonic and supersonic regimes by aircrews on a regular basis. The F-4s moving to MHAFB will require air-to-air combat training (where most of the supersonic flight would occur), a requirement the F-111s now at MHAFB do not have. Supersonic flight operations provide the Air Force with the capability to conduct necessary training in aircraft handling characteristics in the air-to-air arena.

1.1.3 Tiered Decisionmaking and Analysis

Beginning an environmental analysis early in the process of developing an expanded range permits the inclusion of environmental criteria in the decisionmaking process. The CEQ approach called "tiering" facilitates this process and allows analyses prior to the completion of the range design and development. Tiering is appropriate when the environmental analyses and documents evaluate decisions proceeding from the general to the site-specific.

This Tier 1 EIS addresses broad or general issues regarding the proposed expanded range capability. The Tier 1 EIS will not delineate the boundaries of such expansion or the specific sites for facilities. A Tier 2 EIS will be prepared to evaluate alternative locations and determine exact range boundaries, sites for support facilities, and range target arrays. This tiering process will address the potential site-specific impacts of those facilities and allow the Air Force to consider environmental criteria and public input when making locational decisions for the facilities.

The Tier 1 EIS, in addition to evaluating the impacts of realignment actions, identifies and evaluates in general terms the potential expansion of range capability in Idaho and any reasonable alternatives available to meet training requirements. An example of other possible actions to meet training needs would be to use air-to-air refueling missions to fly the aircraft to other locations for training sorties. Air Force short-term, intermediate, and long-term requirements are identified in the Tier 1 EIS. Tier 1 will contribute to a decision to either proceed with detailed studies and analysis for a range capability expansion in Idaho, or select other alternatives to meet training requirements. The Tier 1 EIS will also provide the initial framework (operational criteria, environmental attributes for the area, and description of environmental impacts associated with ranges) for use in the Tier 2 EIS if the decision is made to pursue a range expansion option.

Thus, the Tier 1 EIS will accomplish the following:

1. Assess the impact of realignment actions on the base and surrounding communities.
2. Describe a set of criteria and operational requirements to be used in developing range site(s). These requirements are stated in terms of short, intermediate, and long-term training needs.
3. Assess the impact of other reasonable alternatives to the proposed range expansion (e.g., air refueling missions to other ranges, temporary duty).
4. Describe the existing environmental baseline and characterize the sensitivities of all areas to current land uses and proposed range activities.
5. Develop a baseline of potential environmental impacts of range operations (e.g., aircraft noise, munitions effects, land-use compatibility, etc.).
6. Identify and assess proposals for revisions to existing Special Use Airspace, and for supersonic operations above 5,000 feet AGL.

The Tier 1 EIS will conclude with a Record of Decision (ROD). In addition to addressing the impacts of relocating the 94 F-4E/G aircraft from George AFB, it will also address in the ROD whether to proceed further in the tiering process with ongoing range expansion studies. The ongoing studies will include the Tier 2 EIS, which will identify specific range alternatives and proposals and provide for additional public input as part of the Tier 2 process. The Air Force will participate in a citizen/government working group being facilitated by the BLM to help identify Tier 2 alternatives and ensure all public concerns are addressed. The subjects to be evaluated in Tier 2 will evolve through the public process, including scoping meetings. The main objective of that process will be to determine how the needs and requirements of all parties can be addressed in the Tier 2 EIS.

The Tier 1 EIS will be completed in June 1990. The Air Force plans to start preparation of the Tier 2 EIS in the spring of 1990. The working group process will be conducted in parallel to Tier 1 and will develop proposals and alternatives to be evaluated in Tier 2 to meet short, intermediate, and long-term Air Force requirements.

Tier 2 would be a complete EIS process. It will include a Notice of Intent, Public Scoping, public review and comment on a Draft EIS, and a filing of a Final EIS with the Environmental Protection Agency (EPA), followed by an ROD.

1.2 LOCATION OF THE ACTIONS

MHAFB and the SCR are located in southwestern Idaho (see Figure 1.2-1). The TAC fighter base lies in Elmore County, near the communities of Mountain Home, Grand View, Bruneau, and Glenns Ferry (see Figure 1.2-2). Boise is 50 miles northwest of the base. A map of the installation is provided in Figure 1.2-3.

The northern boundary of the SCR is located about 20 miles from MHAFB. The range is approximately 11.5 miles wide by 15 miles long for a total area of 174 square miles. The current ordnance impact area, which contains all the targets, is a fenced area consisting of approximately 12,200 acres near the center of the range (see Figure 1.2-4). It is designated as an exclusive use area with a surrounding safety buffer area that is a public multiple use area.

The range is situated on a relatively flat plateau that is bounded by the Snake River about 6 miles north of the range boundary and by the Bruneau River canyon along the western boundary. Outside the 12,200-acre exclusive use area, the withdrawn area is a multiple use area (over 96,000 acres) where sheep and cattle grazing are permitted and managed by the BLM. A public county road with no public restrictions crosses part of the range area and leads to a scenic viewpoint and to southern parts of Idaho. The nearest occupied communities are Bruneau, about 7 miles northwest of the range, and Hammett, about 6.5 miles north of the range.

The SCR is associated with restricted airspace R-3202, which is composed of restricted areas R-3202A, R-3202B, and R-3202C (see Figure 1.2-5). Restricted area R-3202A is located about 20 air miles southeast of MHAFB (55 miles by road) in southern Idaho and covers about 297 square miles. Restricted areas R-3202B and C are adjacent to the south and cover about 199 square miles.

Restricted area R-3202 extends into Elmore County to the east. R-3202 is bordered on the south by the Saylor MOA, on the west by the Sheep Creek MOAs, and on the east by the Bruneau MOAs. Both the range and the MOAs are controlled, maintained, and scheduled by the 366 TFW. MTRs used by MHAFB aircraft are shown in Figure 1.2-6.

A proposed expanded range capability would involve land area located in southwest Idaho. Proposed airspace modifications to accommodate the increased mission requirements of MHAFB units would occur in airspace located over eastern Oregon and southwest Idaho. No airspace changes would be required over Nevada. The land area and airspace boundaries associated with a proposed expanded range capability are shown in Figure 1.2-7.



Figure 1.2-1

REGIONAL LOCATION OF MOUNTAIN HOME AFB
AND SAYLOR CREEK RANGE

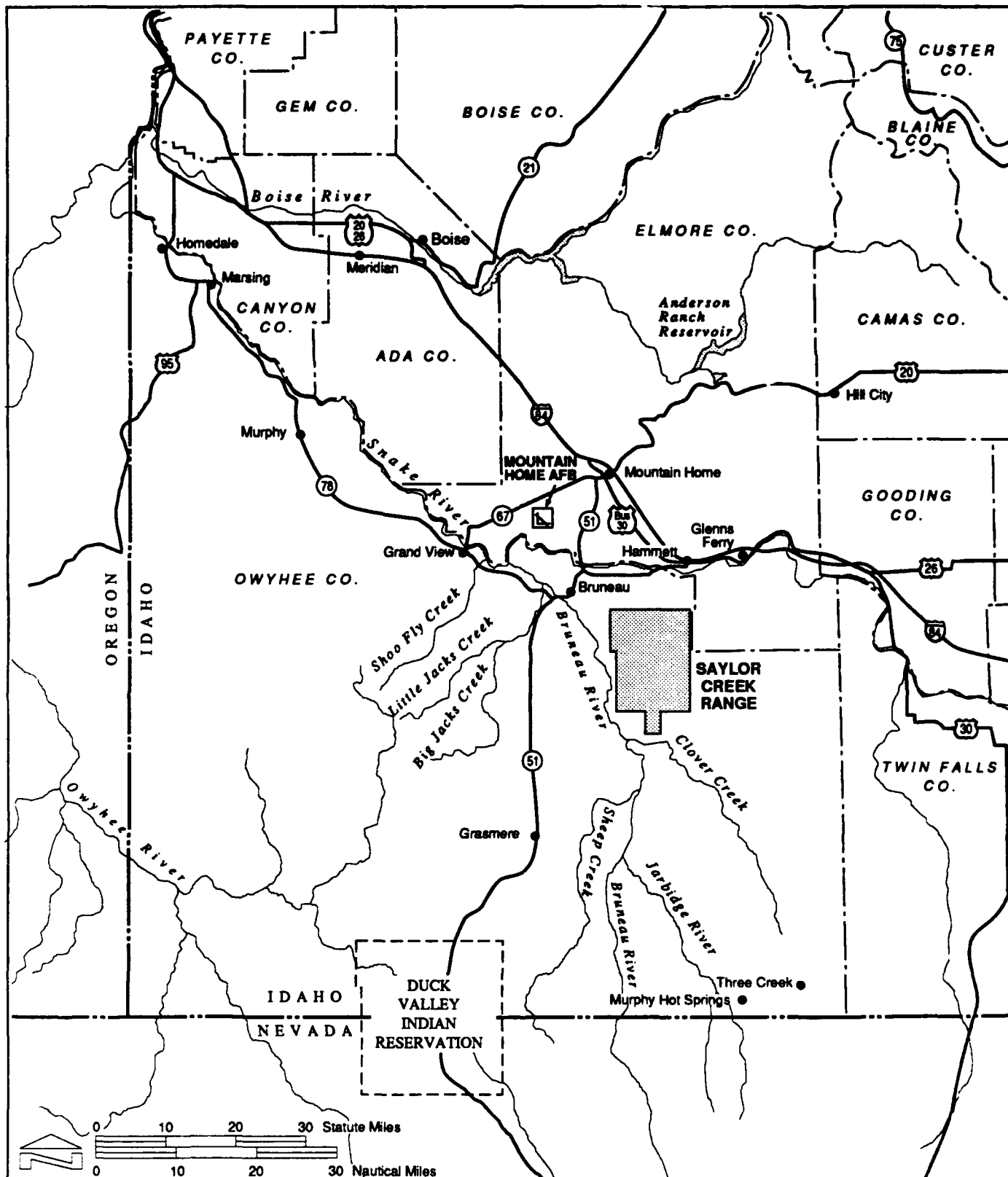


Figure 1.2-2

VICINITY MAP OF MOUNTAIN HOME AFB
AND SAYLOR CREEK RANGE

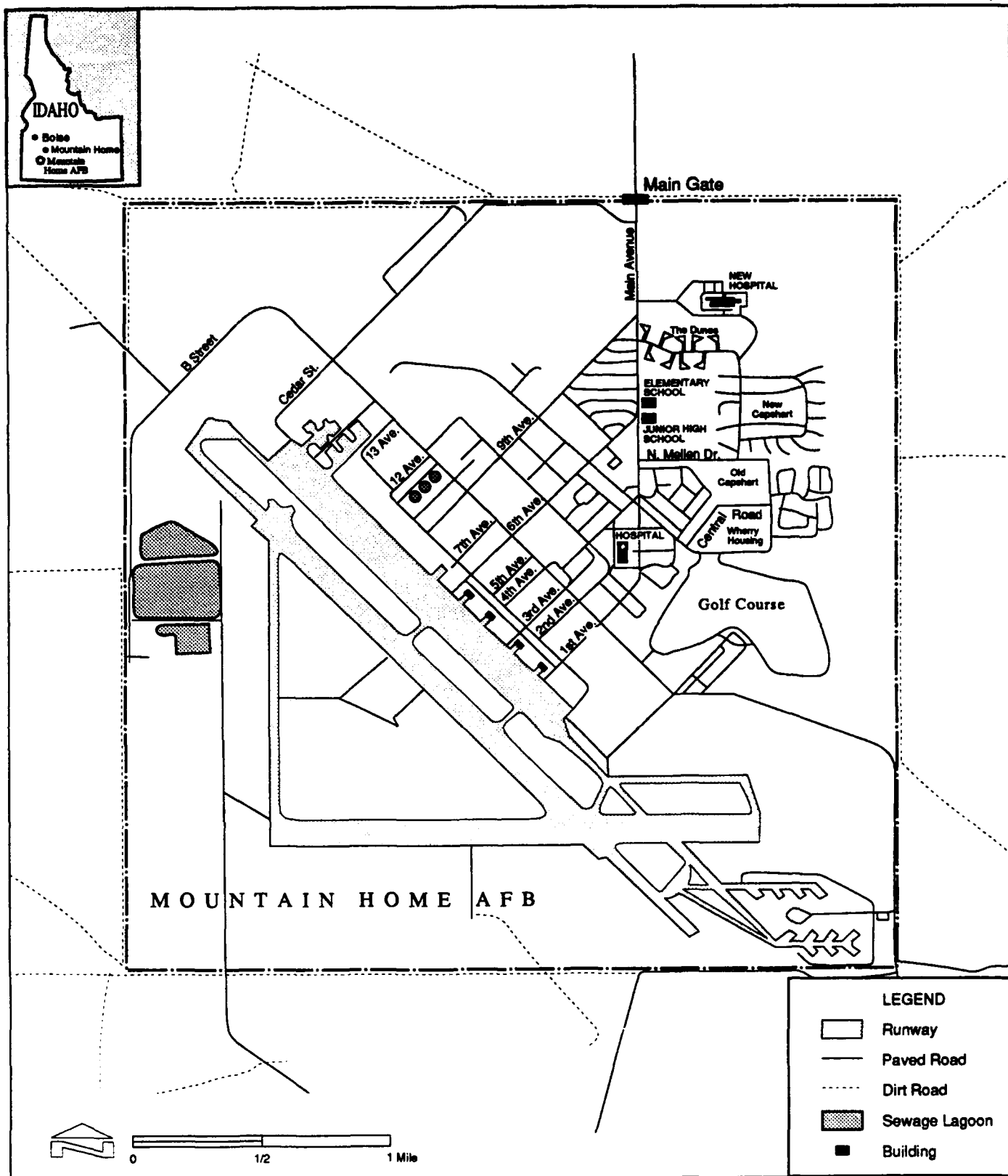


Figure 1.2-3

MOUNTAIN HOME AIR FORCE BASE

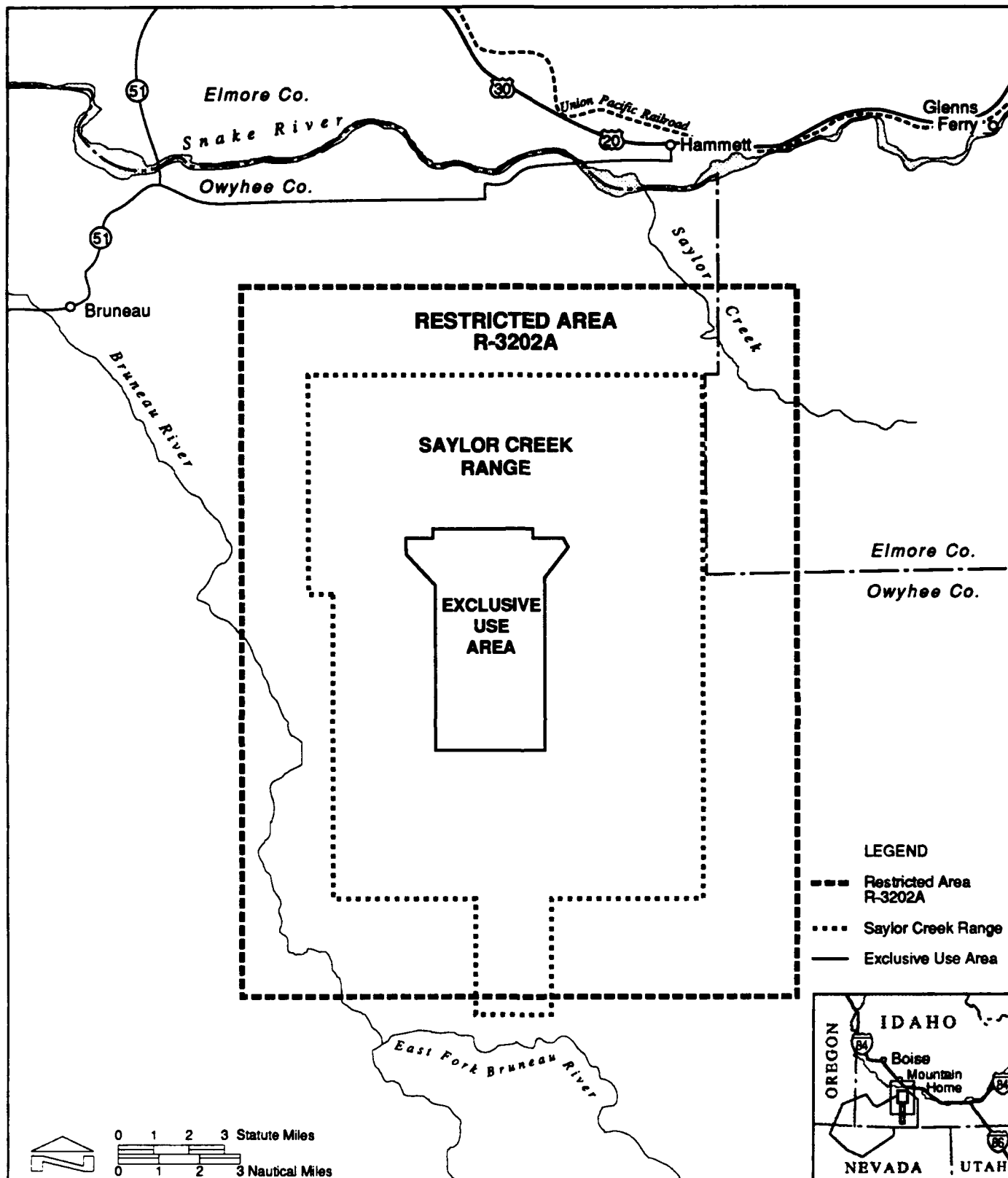


Figure 1.2-4
SAYLOR CREEK RANGE

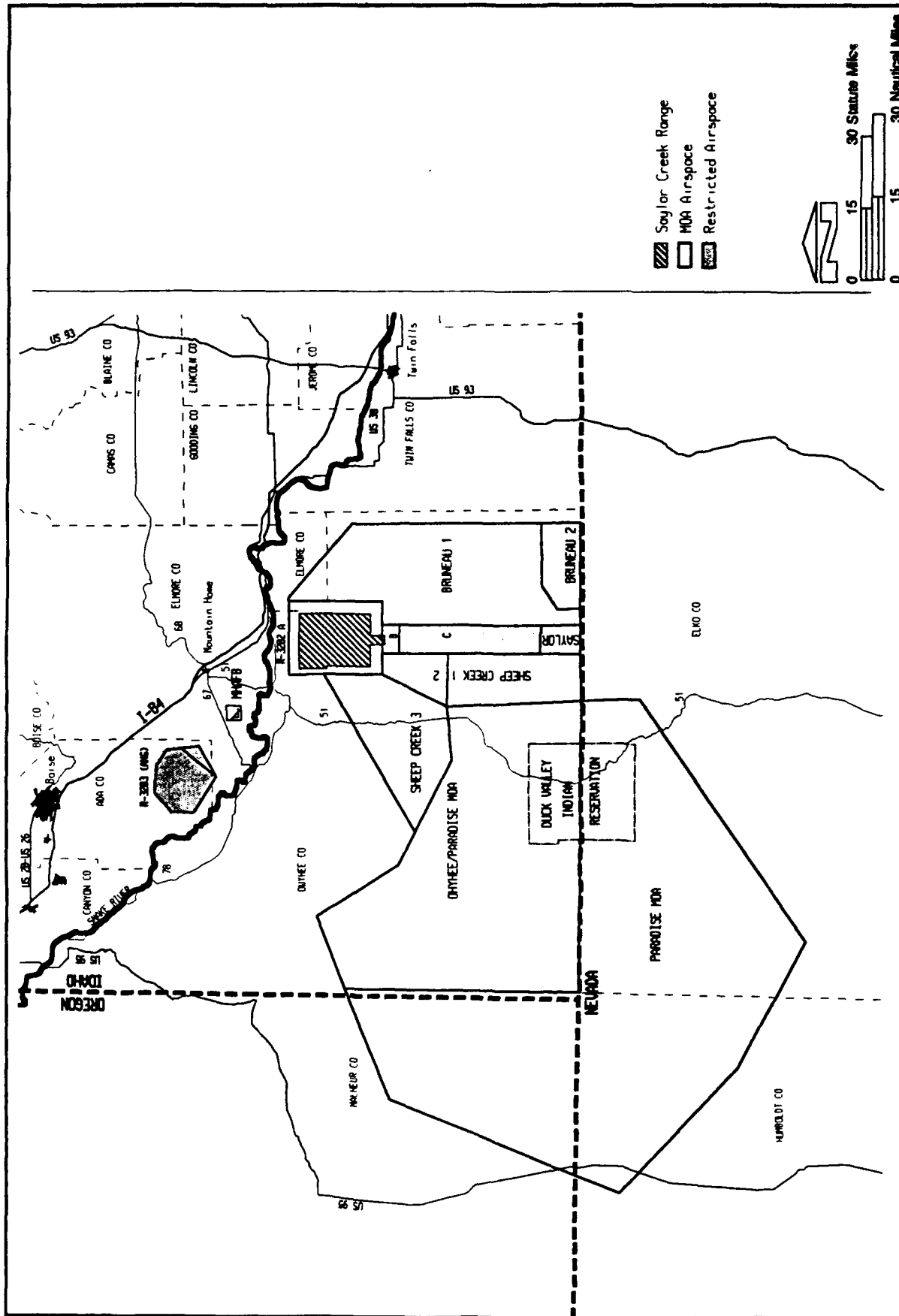


Figure 1.2-5

SAYLOR CREEK RANGE AND ASSOCIATED MOA AND RESTRICTED AIRSPACE

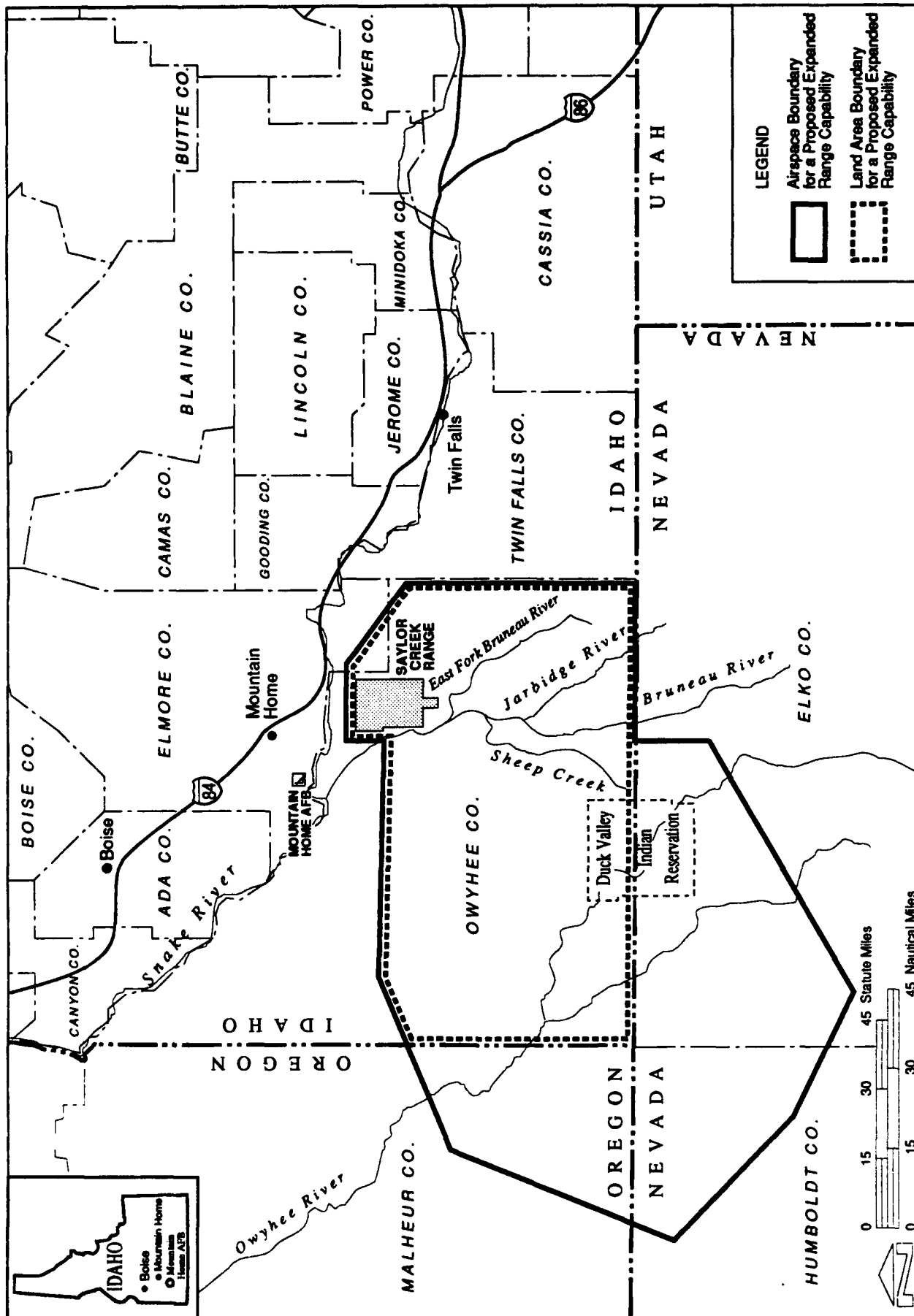


Figure 12-7
STUDY AREA FOR A PROPOSED EXPANDED RANGE CAPABILITY

Air Force Regulations (AFR 19-2) state that there shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process is called scoping. As part of scoping, the Air Force as lead agency invited agency and public participation to determine the scope of the EIS and the significant issues to be analyzed in it. Those issues which are not significant or which have been covered by other environmental review are identified and referenced.

The scoping process for this EIS began in February 1989 with the publication of a notice of intent (NOI) in the *Federal Register* (see Appendix C). On March 16, 1989, a scoping meeting was held in Mountain Home, Idaho. The subject of this scoping meeting was the relocation of the 35 TFW from George AFB to MHAFB. At that time, it was announced that there was a requirement to expand the SCR to support the increased training activities. The Air Force stated that when those requirements had been better defined, information on the range expansion would be made available.

On August 14, 1989, the original NOI was amended and additional scoping meetings were held between September 5 and 11, 1989 in four locations in southern Idaho (Boise, Twin Falls, Glenns Ferry, and Grand View). The focus of those scoping meetings was the expanded range capability and supersonic flight activity. Updated information on the realignment was also presented.

In the interim period between the March and September scoping meetings, the Air Force held several public information meetings with a wide variety of special interest groups, issued press releases, and sent announcement letters to federal, state, and local government officials and civic leaders. A list of the issues raised in the September scoping meetings is contained in Appendix D. Based on the issues raised at the March scoping meeting and subsequent interaction with the public, the Air Force compiled the following list of environmental resources requiring analysis:

- | | | | |
|---|----------------------|---|----------------------------|
| o | Earth Resources | o | Noise |
| o | Air Resources | o | Land Use |
| o | Water Resources | o | Transportation |
| o | Biological Resources | o | Socioeconomics |
| o | Cultural Resources | o | Airspace Management |
| o | Visual Resources | o | Safety/Hazardous Materials |

At the scoping meetings held in September, the Air Force announced that it would implement a two-tiered approach to the environmental analysis to evaluate the impacts of the realignment and the range expansion. Further details regarding the Tier 1 and Tier 2 environmental studies are provided in section 1.1.3, Tiered Decisionmaking and Analyses.

1.4 RELEVANT FEDERAL, STATE, AND LOCAL STATUTES, REGULATIONS, AND GUIDELINES

This document was prepared in compliance with AFR 19-2, which implements the NEPA, PL 91-190 (42 USC 4321 et seq.), and implementing regulations (40 Code of Federal Regulations [CFR] 1500 et seq.) established by the CEQ.

This document also addresses the relevant sections of the Clean Air Act, Clean Water Act, Resources Conservation and Recovery Act, Wilderness Protection Act, Rivers and Harbors Act, Threatened and Endangered Species Act, National Historic Preservation Act, as well as state environmental laws and local regulations and ordinances. The above acts and regulations are discussed in the resources sections to which they apply (e.g., Biological Resources section discusses the Threatened and Endangered Species Act).

The purpose of this EIS is to assess the impacts of the MHA FB realignment and proposed expanded range capability. The draft EIS (DEIS) will be filed with the Environmental Protection Agency (EPA) and circulated to the public and concerned agencies for review and comment. Public hearings will be held to facilitate the public review process. In addition, written comments on the DEIS during the 45-day public review period will be addressed in the final EIS (FEIS).

BLM, a bureau within the Department of the Interior (DOI), is a cooperating agency on this EIS. As a cooperating agency, BLM's Boise District office has made significant contributions to this EIS by way of data inputs, the development of the document outline, and reviewing the document. The Boise District office's focus has been primarily on the proposed expansion of range capability, as BLM would be responsible for processing any potential land withdrawal request made by the Air Force. Appendix E briefly describes the land withdrawal, rights-of-way, and land acquisition processes. This appendix is included for information purposes only; no specific land withdrawal will occur based on the results of the Tier 1 EIS.

2.0 DESCRIPTION OF ACTIONS AND ALTERNATIVES

2.1 THE ACTIONS

As described in section 1.0, the realignment of MHAFFB results from the Base Closure and Realignment Act that was signed into law on October 24, 1988. One of the 86 installations selected for closure was George AFB, California. All of the F-4 units currently stationed at George will be transferred to MHAFFB, Idaho. To make room at MHAFFB for the George aircraft and personnel, it will be necessary to move 35 F-111 aircraft and associated personnel from MHAFFB. These F-111s and personnel will be transferred to other units to better consolidate command and control of the F-111 fighter/bomber assets.

As an adjunct to this action, the Air Force has also proposed to expand range capability to provide the 117 fighter aircraft based at MHAFFB after realignment with adequate training facilities, to accommodate many other user aircraft whose training requirements on the range have increased and will continue to increase in the future, and to integrate the training requirements of new aircraft and weapons systems.

2.1.1 Relocation of George AFB Assets to MHAFFB

The transfer of assets from George AFB to MHAFFB will involve 94 F-4E and F-4G aircraft and their aircrews and support personnel. This group is composed of the following squadrons and detachments:

- o 20th Tactical Fighter Training Squadron (TFTS) (German Air Force Training) consisting of 18 USAF F4-E aircraft;
- o 21 TFTS consisting of 30 F-4E training-coded aircraft;
- o 562 TFTS consisting of 12 F-4G and 7 F-4E aircraft;
- o 561 Tactical Fighter Squadron (TFS) consisting of 24 F-4G aircraft; and
- o Tactical Air Warfare Center, Detachment 5, consisting of three F-4G aircraft.

These units will be integrated into the newly-formed 831 Air Division at MHAFFB after realignment, consisting of the 366 TFW and the 35 TTW.

The personnel associated with this action and other programs planned for the base between fiscal 1990 and 1992 are shown in Table 2.1-1 below. The category of "other" consists of additional personnel programmed to transfer to MHAFB not directly related to the George AFB F-4s and associated personnel. These personnel are included to present a complete picture of the projected changes over the next five years.

Table 2.1-1

Realignment-Related Personnel Changes at MHAFB

<u>Personnel</u>	<u>Officers</u>	<u>Enlisted</u>	<u>Civilian</u>	<u>Total</u>
Arriving	367	2,979	249	3,595
Departing	201	1,375	75	1,601
Net Increase	166	1,654	174	1,994

2.1.2 Relocation of MHAFB Assets

All 35 F-111A will be transferred from MHAFB to other units. The outbound personnel flow will be integrated with the inbound personnel flow to retain current manning levels. A gradual increase in personnel will then occur from June 1990 to April 1991. The two affected squadrons are:

- o the 389 TFTS, consisting of 17 F-111A aircraft, will be deactivated and moved during October through December 1991; and
- o the 391 TFS, consisting of 18 F-111As, will be deactivated and moved during July through September 1990.

These two squadrons will be converted to F-4 units as the George AFB F-4s arrive at MHAFB.

The 23 EF-111 aircraft currently based at MHAFB will not be transferred. The configuration of the newly-formed 831 Air Division at MHAFB after realignment is shown in Table 2.1-2. The number of additional aircraft based at MHAFB as a result of the realignment will be 59, for a total number of 117 fighter aircraft.

Table 2.1-2**Aircraft Composition of 831 Air Division at MHAFB**

<u>Unit</u>	<u>Squadron</u>	<u>Number of Aircraft</u>	<u>Type of Aircraft</u>
366 TFW	389 TFTS	19	F-4E/G
	390 ECS	22	EF-111
	391 TFS	24	F-4G
35 TTW	561 TFTS	30	F-4E
	562 TFTS	18	F-4E
	392 ECRS	---	---
DET3/DET5	---	3	F-4G
	---	1	EF-111

A loss of 1,601 personnel authorizations associated with the transfer of F-111s and a corresponding gain of approximately 3,600 personnel authorizations associated with the transfer of F-4s from George AFB and other programmed changes result in a net increase of 1,994 personnel authorizations (see Table 2.1-1). During the period when the F-111s begin to depart MHAFB and the F-4s begin to arrive, net personnel departures are not anticipated to exceed 250 due to many F-111-associated personnel filling the new F-4 authorizations.

On-Base Construction to Support the Realignment

New construction and modification of existing facilities at MHAFB is planned to support the increase in aircraft and personnel. The facility construction projects range from military family housing to hangars and munitions storage. The projects, the fiscal year in which each will occur, and the type of construction (new, modification, or repair) are shown in Table 2.1-2. The proposed locations of these construction projects are shown in figures 2.1-1 through 2.1-4.

Planning for the construction projects was conducted by MHAFB engineering and planning staffs in accordance with guidance and standards established by Air Force directives. In late December 1988, MHAFB's Base Civil Engineer assembled a team of on-base staff with the functional expertise to develop the facility requirements needed to support the realignment of aircraft and personnel from George AFB. This team drew its guidance for siting new facilities from MHAFB's Long-Term Improvement Plan which, in turn, was developed in accordance with AFR 86-4 (Base Comprehensive Planning). The Long-Term Range Improvement Plan sets forth land use areas for the base (e.g., industrial, commercial, administrative, and residential). The sizing of facilities, new or modified, was done in accordance with AFR 86-2 (Standard Facilities Requirements).

Numerous siting factors were considered, including the general and specific guidance set forth in AFR 86-4 and other associated directives; the airfield and airspace criteria contained in AFR 86-14; contaminated areas being investigated or remediated in accordance with the Installation Restoration Program (IRP); quantity-distance zones around explosives storage sites; AICUZ noise zones; an evaluation of existing facilities for contribution to or impact on the new functional uses; existing and projected traffic patterns and volumes; infrastructure demands; operational requirements; and functional relationships.

Where possible, operational/functional groupings of facilities were established with consideration given to interface with existing compatible uses, consolidation with similar facilities where possible, spatial requirements, and physical limitations. Existing facilities that would be consolidated, displaced, and/or relocated to other sites were also evaluated. The goal was to build the most efficient and cost-effective operation.

The initial realignment planning process culminated in late January 1989 with a presentation made at MHAFFB to HQ TAC's site-survey team. The site-survey team included, in addition to HQ TAC staff, representatives from Air Staff (Civil Engineering, Bases and Units) and from George AFB. The site-survey team validated the requirements set forth by the MHAFFB team.

Eleven of the 24 proposed construction projects included in Table 2.1-3 are modifications or repairs to existing facilities. The sites for these construction projects were predetermined by the location of each existing facility. Thirteen of the construction projects are new facilities. They are listed in Table 2.1-4, which also identifies the primary siting factors determining the proposed locations for each new facility.

2.1.3 Proposed Expanded Range Capability

2.1.3.1 Introduction

The SCR historically has supported the training needs of TAC fighters and SAC bombers located at and near MHAFFB, and the IANG. In recent years, the range has experienced a considerable increase in usage by these units as well as requests for additional access from other units. This increased demand for SCR time along with a need for more realistic aircrew training revealed serious limitations and deficiencies of the present range. These deficiencies will be magnified in the short-term, immediately following F-4 beddown at MHAFFB.

The Air Force's short-term and intermediate-term requirements will be over the next five years. In the short-term, the Air Force must satisfy the immediate training needs of aircrews stationed at MHAFFB with only existing range facilities. The present SCR is inadequate to meet the immediate needs of MHAFFB, along with other users cited above. Therefore, in the intermediate-term the Air Force

Table 2.1-3**REALIGNMENT-RELATED CONSTRUCTION PROJECTS ON MHAFB**

<i>Construction Project</i>	<i>Fiscal Year</i>	<i>Type</i>	<i>Figure</i>	<i>Number</i>
Convert Bldg 278 to Squadron Operations	1990	Modification	2.1-1	1
Aircraft Engine Shop	1990	New	2.1-1	2
Munitions Magazine	1990	New	2.1-1	3
Taxiway "D"	1990	Repair	2.1-1	4
Fuel Fill Stand	1990	New	2.1-1	5
432 Units of Military Family Housing	1991	New	2.1-2	1
208 Person Dormitory	1991	New	2.1-2	2
Avionics Add-on to Bldg 1327	1991	Modification	2.1-2	3
Munitions Facility	1991	New	2.1-2	4
Radar Calibration Add-on to Bldg 1333	1991	Modification	2.1-2	5
Squadron Operations/AMU	1991	New	2.1-2	6
Heating Plant	1991	New	2.1-2	7
AGS/WRSK Add-on to Bldg 1361	1991	Modification	2.1-2	8
Squadron Operations Facility	1991	New	2.1-2	9
Aircraft Hanger	1991	New	2.1-2	10
Inert Munitions Storage	1991	New	2.1-2	11
AMU Add-on to Bldg 277	1991	Modification	2.1-2	12
Sewage Treatment Plant	1991	Modification	2.1-2	13
Flight Simulator Add-on to Bldg 840	1992	Modification	2.1-3	1
Armament Shop Add-on to Bldg 1225	1992	Modification	2.1-3	2
Supply Warehouse	1992	New	2.1-3	3
Squadron Operations Add-on to Bldg 272	1992	Modification	2.1-3	4
Washrack Corrosion Control	1992	New	2.1-3	5
Dining/Troop Issue	1992	New	2.1-3	6

Table 2.1-4

SITING FACTORS FOR NEW CONSTRUCTION AT MHAFB

<i>New Facility</i>	<i>Adjacent to Existing Similar Facility</i>	<i>Adjacent to Flightline</i>	<i>Adjacent to Base Operations</i>	<i>Quantity Distance Criteria</i>	<i>AICUZ Noise Criteria</i>
Aircraft Engine Shop	X	X			
Munitions Magazine	X			X	
Fuel Fill Stand	X	X			
Military Family Housing	X				X
Dormitory	X				X
Munitions Facility	X			X	
Squadron Operations/AMU		X			
Squadron Operations Facility		X			
Aircraft Hangar	X	X			
Inert Munitions Storage	X			X	
Supply Warehouse		X	X		
Washrack Corrosion Control	X	X			
Dining/Troop Issue	X				

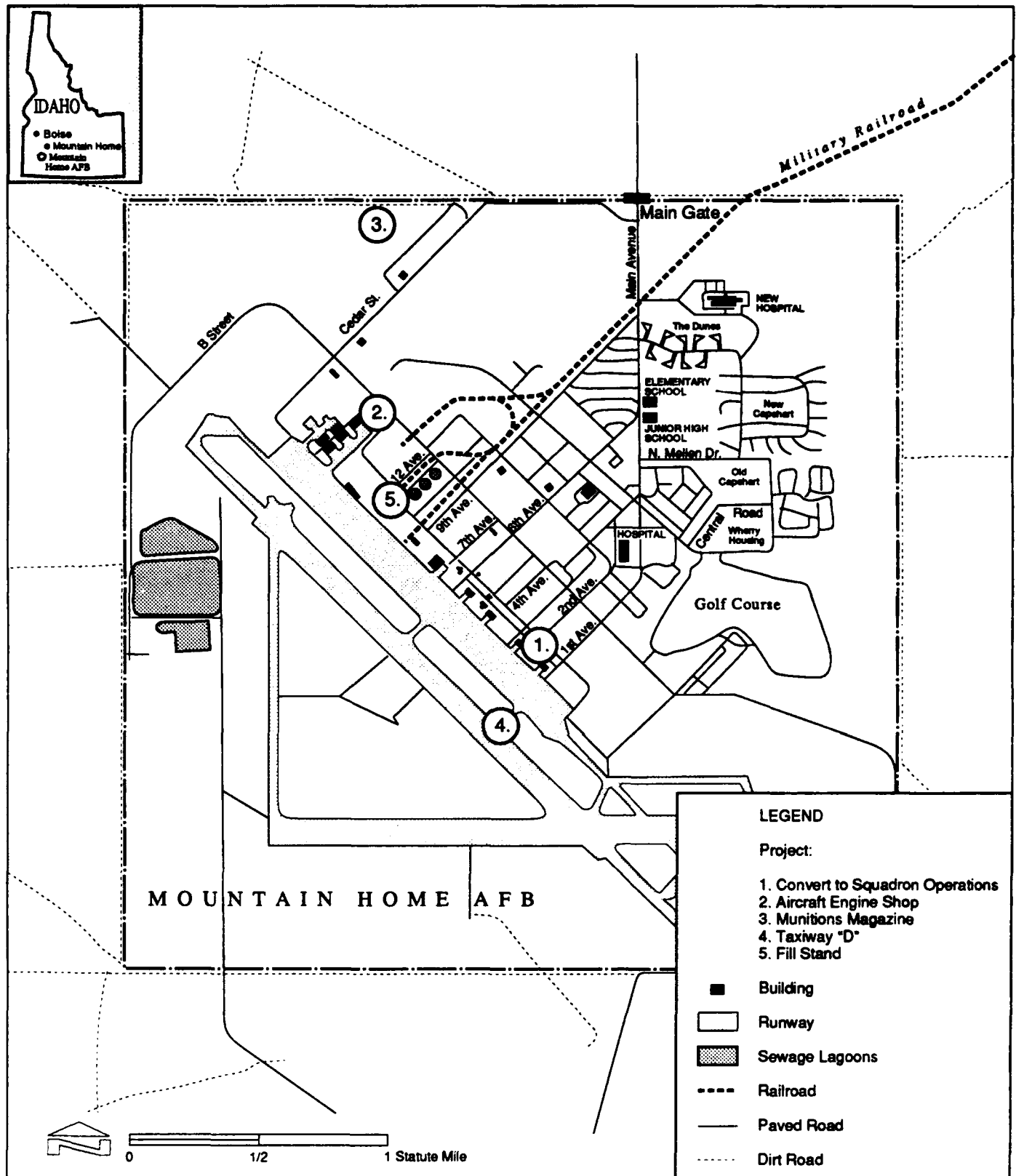


Figure 2.1-1

REALIGNMENT-RELATED PROJECTS FOR FISCAL YEAR 1990

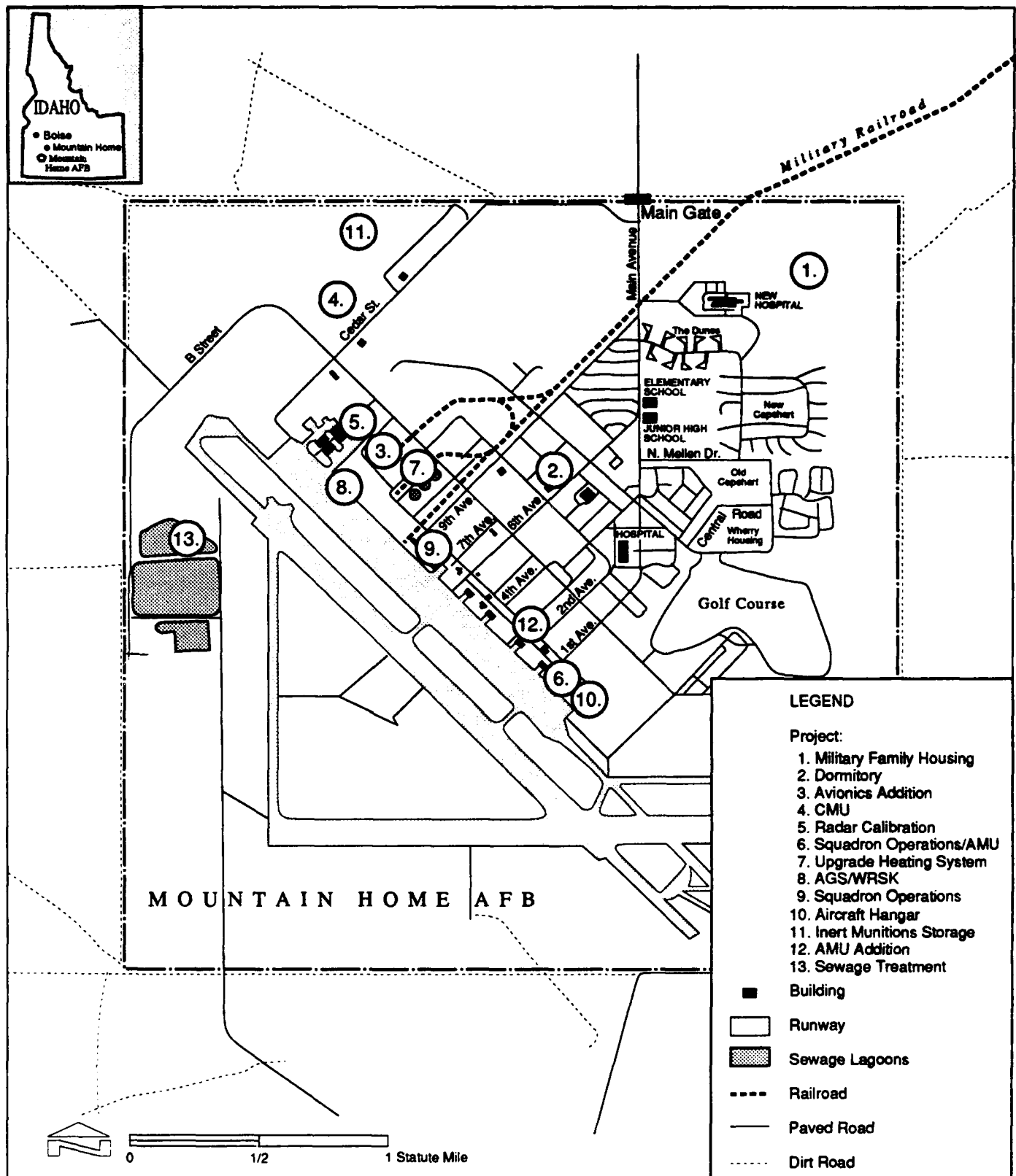


Figure 2.1-2

REALIGNMENT-RELATED PROJECTS FOR FISCAL YEAR 1991

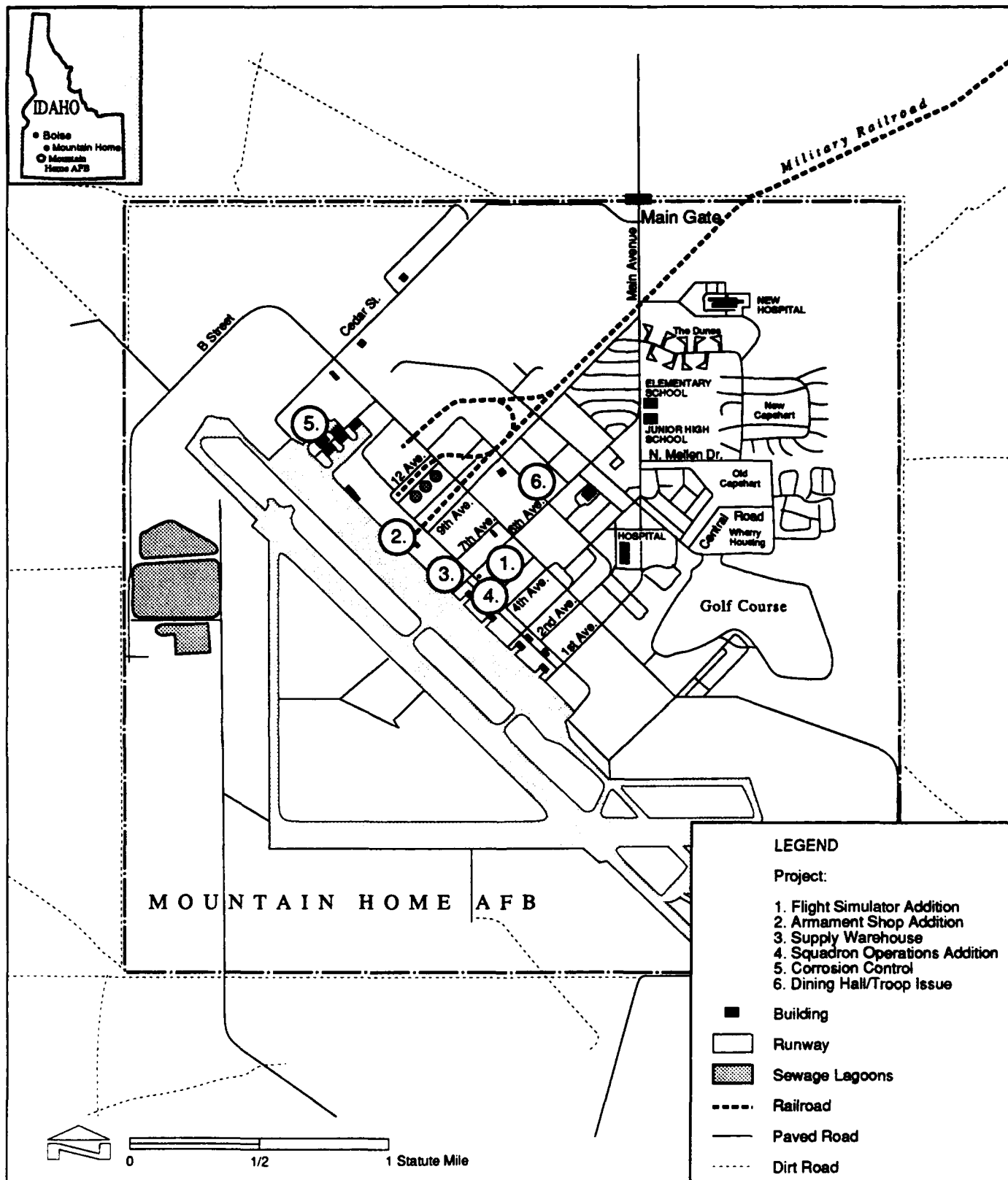


Figure 2.1-3
REALIGNMENT-RELATED PROJECTS FOR FISCAL YEAR 1992

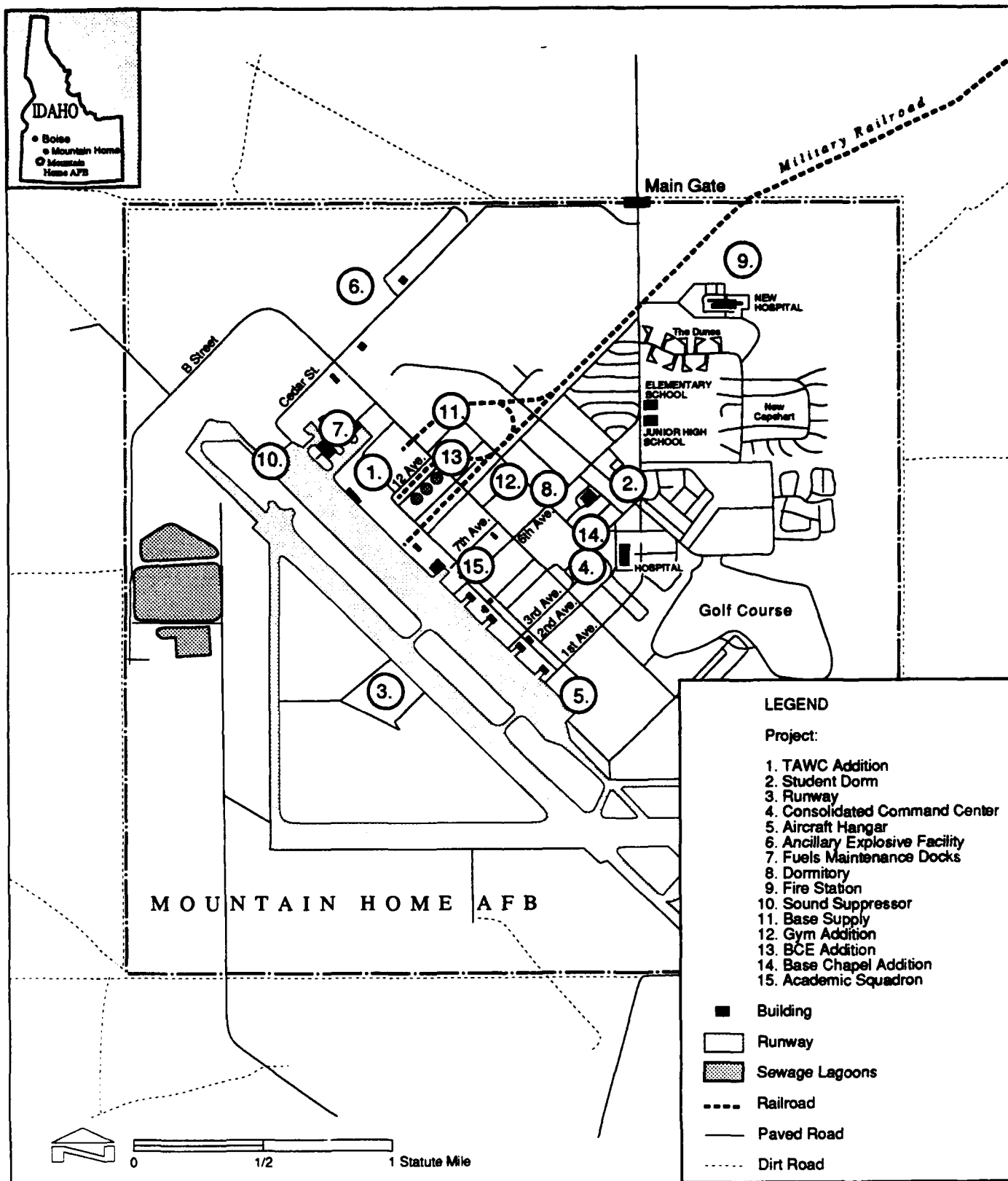


Figure 2.1-4
OUT-YEAR PROJECTS

proposes to expand range training capacity to satisfy all potential military users in a realistic training environment.

Recent rapid changes in the geopolitical world order and subsequent evolutionary changes in the U.S. defense force structure make the long-term outlook difficult to predict. However, better, more realistic training for an expected smaller, better equipped fighting force will be at a premium.

Short-Term (Immediately following F-4 Beddown)

The current SCR can provide about 4,100 range periods (of 30-minute duration each) per year. Relocating 94 F-4 aircraft to MHAFB in October 1991 will result in 59 more aircraft being assigned to the installation. The F-4E/Gs have a more extensive and larger number of range requirements than do F-111s that are currently stationed there, and the F-4 missions must be flown within 150 NM of MHAFB without refueling. As a result, a significant shortfall in range capacity and capability for both conventional and tactical range training exists.

Intermediate-Term (Three to Five Years following Realignment)

The Air Force goal is to provide substantial, realistic training for MHAFB-based aircrews as well as other primary users of the present SCR. This training includes the use of adequate tactical and conventional bombing, air-to-air, electronic warfare, and composite force training (CFT). In order to meet these requirements, expansion of range capability in the MHAFB area would be necessary.

Long-Term (Year 2000 and Beyond)

In the next five to 10 years, the Air Force will be receiving new aircraft, systems upgrades, and new weapons with enhanced capability that may require further range capability expansion, redesign, or reconfiguration. Aircraft such as the F-15E, F-117A, F-4G follow-on, B-2, and weapons systems such as the High-speed Anti-radiation Missile (HARM) replacement, Air-to-Ground Missile (AGM)-130, Hyper Velocity Missile, Air-Launched Cruise Missile, Sensor-Fused Weapons, and other improved dispenser weapons will place additional requirements on ranges. These new weapons systems are necessary to counter anticipated advances and changes in technologies that may be employed by enemy forces.

2.1.3.2 Operational Criteria for Providing Expanded Range Capability

Realism

Lessons learned from the conflict in Southeast Asia and other recent hostilities indicate that in order to survive, Air Force aircrews must train realistically as often as possible. It is essential to complete their missions under the stress of highly sophisticated combat environments. This imposes a requirement for training realism that has profound implications on training range design and training scenarios. Principally, training realism requires that the training ranges be carefully designed to simulate an anticipated theater of hostilities and the offensive/defensive doctrines of possible enemy forces.

Expanded Range Capability within 150-NM Distance from MHAFB

The optimum unrefueled range of the F-4 is 150 NM. To maximize flying training time and minimize the time/fuel required in transit, a range with expanded capability should be located within 150 NM of MHAFB. Based on a range located 150 NM from MHAFB, F-4s expend 900 gallons of fuel to reach the range, leaving approximately 1,000 gallons of fuel or about 30 minutes of flying time available for tactical training. The remaining 900 gallons of fuel are used for returning to base and for reserve for unforeseen adverse weather conditions or for emergency situations. Any range located greater than 150 NM away from MHAFB would increase transit time and fuel required, resulting in less time to accomplish effective training and an increase in the overall cost of that training.

Minimum Impact on Civil Aviation

As required by Air Force and FAA regulations, a range with expanded capability should be located in airspace transited by few commercial airways and servicing limited established airports and general aviation traffic. It should be sited to avoid and minimize the impact that military flight operations may have on other airspace users.

Population Density

An expanded range capability should be provided in an area that is very sparsely populated so that the fewest number of people are affected by dislocation or noise resulting from flight training activity, including supersonic operations.

Terrain

The types of targets used for training on a range with expanded capability must be located in logical topography. For example, tanks would not be located on steep mountain sides, and airfield complexes would not be located in canyons.

Minimum Conflicts with Existing Civilian Activities

Location, size, and use of live ordnance areas on an expanded range must be planned to allow realistic training while minimizing effects on existing activities and risks to public safety. Further, proposed supersonic sorties should not interfere with any existing land or airspace use. Operational altitudes available for supersonic flight must be low enough to accommodate realistic missions but still be compatible with effective air route traffic control and general aviation traffic. In addition, since ground sonic boom effects are proportional to the altitude of the aircraft above the ground, the minimum operational altitudes must be planned to allow realistic scenarios while minimizing the sonic boom effects on the public beneath the airspace.

2.1.3.3 Alternatives Including the Proposed Action

The alternatives considered for meeting the short, intermediate, and long-term range requirements include (1) using simulator training devices to fulfill range requirements, (2) using the existing SCR in conjunction with other ranges within 150 NM of MHAFB, (3) building another range within 150 NM of MHAFB, (4) using ranges beyond 150 NM of MHAFB, (5) deploying to ranges beyond 150 NM of MHAFB, (6) inflight refueling of aircraft to reach ranges with adequate training capability, and (7) expanding range capability.

Using Simulator Training Devices to Fulfill Range Requirements

Currently, no simulators exist that simulate actual combat realism and dynamics of tactical combat. F-4E/G and EF-111A simulators have no motion, limited visual capability, and limited scoring capability. No tactical improvements or new F-4/EF-111 simulators are being developed. This alternative would not meet even minimum requirements.

Using the SCR in Conjunction with Other Ranges within 150 NM of MHAFB

The only range other than the SCR located within 150 NM of MHAFB is the Orchard Range. The Orchard Range is an artillery and tank training range controlled by the IANG. The impact area is too small to be used for aerial bombing. To change the configuration to accommodate aerial bombing

would adversely impact the Army mission. This alternative would not permit the Air Force to meet its training needs.

Using Ranges Beyond 150 NM of MHAFB

Since there are several ranges beyond 150 NM of MHAFB that could be used, one option considered was joint use by MHAFB aircraft and the managing unit. This alternative would involve higher economic and operational costs. However, on a limited basis, some Air Force range requirements could be fulfilled in this fashion.

Under this alternative, aircraft would operate from MHAFB directly to and from joint use ranges with no requirement for inflight refueling. The problem encountered is the distance to these joint use ranges. The closest joint use range to MHAFB usable by F-4s is the Eagle Range at the Utah Test and Training Range (UTTR), which is 173 NM away. Due to the unrefueled range of the F-4, the 346 NM of round-trip travel would result in only 10 to 20 minutes of range utilization time for each sortie (see Appendix B). In this situation, the operational cost in relation to training derived would be prohibitive.

Further, the UTTR is already scheduled at maximum capacity and is not anticipated to have the capability to support MHAFB aircraft. Because the UTTR is a prime testing range for Air Force weapons systems, the MHAFB training mission would not possess the priority to dislodge the UTTR's present mission. As a result, MHAFB F-4 aircraft would be unable to gain adequate access to UTTR. Similarly, the Fallon Naval Air Station (NAS) range in Nevada is unable to support Air Force needs other than on a "catch as catch can" basis. Such a basis for necessary training is unacceptable. Nellis would have ranges available for use by the F-4Es and F-4Gs, but the 300-NM one-way flight would make it unusable without inflight refueling or deploying aircraft to Nellis AFB.

Three of the four F-4 squadrons being assigned to MHAFB are student Replacement Training Unit (RTU) squadrons. An RTU squadron's mission is to provide initial qualification training for F-4 aircrew members. As such, a major portion of the training is conducted in a classroom environment or in a training device such as a simulator¹. In the student environment, it is absolutely necessary to achieve maximum training on each mission. In an RTU, training flights start with the most basic tasks and methodically progress to the more advanced. This results in a complex sequence of training activities consisting of academics, training devices (e.g., simulators and mock-ups), and flights. Thirty-minute periods on a range are considered the standard minimum to allow a student to achieve the maximum training on each mission.

1. Training is scheduled according to the B Syllabus: 247 hours of classroom instruction and up to 53 hours of either cockpit familiarization, part task trainer, or simulator missions.

Flying long distances to ranges such as UTTR does not permit maximum sortie effectiveness. Doing so would require up to a threefold increase in sortie production requirements. Such an increase would prohibitively increase fuel and maintenance costs and, at the same time, unacceptably degrade aircrew training production. Further, the requirement to fly at high altitude for optimum fuel conservation in order to reach distant ranges, reduces the ability to conduct required low-level training events.

Similarly, post-RTU continuation combat training for mission-ready aircrews would be impacted in terms of aircrew proficiency and combat capability. Crewmembers would not be able to attain adequate proficiency if forced to fly long distances at high altitude and use an air-to-surface range for less than 20 minutes. To achieve the needed level of readiness would require up to a two-fold increase in the number of missions.

Temporarily Using Satellite Operating Locations to Obtain Range Time

The following analysis evaluates the feasibility of obtaining range times by one of two methods: (1) flying "out-and-back" sorties to Hill AFB, and (2) temporarily deploying MHAFB units to operating locations with access to ranges within 150 NM. Either of these options would be feasible on a limited basis for mission-ready aircrews, but not to the extent needed to absorb all unfulfilled requirements from the SCR after beddown of the F-4s.

Flying "out-and-back" sorties to Hill AFB would involve flying a mission to a nearby range (probably UTTR) and landing at Hill to refuel and reload munitions. The return trip would involve taking off from Hill AFB, flying another mission to the nearby range, and landing back at MHAFB. Hill AFB was chosen for this option because it is an Air Force installation with facilities in place that could handle recovering, reloading, and relaunching Air Force tactical aircraft. Further, Ogden Air Logistics Center (ALC) is co-located with Hill. Ogden ALC provides depot maintenance for F-4s and could provide some emergency F-4 maintenance if required. For these reasons, Hill AFB provides the best case for analysis.

MHAFB F-4Es and F-4Gs could operate on a limited basis using an "out-and-back" mission profile. A typical profile would be to fly at high altitude to UTTR (Wildcat Range) for 30 minutes of range activity and then land at Hill AFB. After landing, refueling, and rearming at Hill, the aircraft could fly a low-level navigation mission to arrive at UTTR with enough fuel (2,000 gallons) to use 10 to 20 minutes of range time.

An "out-and-back" scenario has several drawbacks that make this alternative infeasible on a large scale basis due to delays in aircrew training continuity and range time availability. Deploying to Hill AFB would be constrained by UTTR saturation and the priority of test missions. UTTR ranges are already

scheduled to capacity and do not have the ability to absorb the additional eight hours per day range time needed solely for MHAFB F-4s. Consequently, this alternative would be infeasible.

Temporarily deploying units from MHAFB to obtain range time would entail stationing an entire squadron (aircraft, aircrews, and support personnel) at another operating location for up to 60 consecutive days. Nellis AFB was chosen as a suitable operating location because F-4G aircraft at George AFB currently use some of the Nellis ranges.

This alternative would not be practiced for three of the four F-4 squadrons being transferred to MHAFB. Academic and simulator training is spread throughout the course and must be accomplished to complete training. The 561 TFS is the only F-4 squadron that could reasonably use this option to satisfy some of their training requirements.

To avoid the prohibitive expense of maintaining a complete on-site parts inventory, replacement aircraft parts would be maintained at MHAFB and transported to the operating location when required. In addition to increased transportation costs, the delay in getting parts from MHAFB would reduce aircraft in commission rates at the operating location. The wing's world-wide defense capability would be seriously degraded if the operational F-4G squadron deployed away from MHAFB on a long-term basis.

The adverse impact on the morale of Air Force personnel required to support this alternative is another factor that must be considered. While deployed to Nellis, families of operations and maintenance personnel would have to remain at MHAFB. The necessity for family separation is accepted in the military; however, the validity of forced family separation to accomplish air-to-surface training at a satellite location when that flying could be reasonably accomplished closer to MHAFB is questionable.

The following data summarize three major costs required to deploy and maintain an F-4 squadron (24 aircraft) at Nellis AFB. Cost estimates are based on deploying/maintaining a squadron-size detachment at Nellis AFB for one year with a rotation of personnel back to MHAFB every 60 days. A squadron-size operation requires approximately 300 enlisted and 67 officers for a total personnel package of 367. The total cost per year to accomplish this alternative is estimated to be \$2,071,262. The total includes deployment costs, temporary duty personnel costs, and personnel rotation costs. Computations used to derive both individual and total operating costs are provided in Appendix B.

Although partially acceptable for some short-term operations, long-term joint use of ranges through "out-and-back" or deployment, in lieu of establishing local range capability, is not economically or operationally feasible.

Utilizing Inflight Refueling to Increase Area Flight Time

Aircraft from MHAFB could operate on a very limited basis to and from other ranges in the western United States such as UTTR, Fallon, or even Nellis AFB. Because of the greater distance involved, the operational cost per F-4 sortie to these ranges will be nearly twice the cost per sortie to the SCR. The additional costs are attributable to the increased F-4 flight time and the inflight refueling support necessary to accomplish sorties to UTTR, Fallon, or Nellis. An F-4 sortie to the SCR requires a total flight time of 1.5 hours. A typical mission profile would include a low level training route mission followed by 30 minutes of activity at the SCR. In order to accomplish the same training (same profile) followed by 30 minutes of range time at UTTR, Fallon, or Nellis would require between 2.4 hours and 3.0 hours for a round trip.

Missions to the SCR can be flown without inflight refueling, while each sortie to UTTR, Fallon, or Nellis would require aerial refueling to and/or from the area to accomplish 30 minutes of range time. Five KC-135 refueling aircraft would be required per day. The total flight time for each KC-135 mission would average approximately five hours. Using current costs per flying hour, the cost per F-4 sortie for 30 minutes of range flight time at the SCR is \$4,123, whereas the UTTR cost per sortie would be \$8,497. A summary of these computations is provided in Appendix B.

The additional costs resulting from F-4 operations at UTTR or Fallon using aerial refueling are acceptable on a limited scale since each mission aircrew member must maintain refueling proficiency and each upgrading crewmember requires aerial refueling training as part of the RTU syllabus. This training can be accomplished in conjunction with a range mission. However, an alternative requiring large-scale refueling support on a daily basis is impractical due to excessive cost, unavailability of adequate range time, and unavailability of adequate tanker support. Because Nellis is located 300 NM southwest of MHAFB, aircraft would require refueling before and after using the range.

Building Another Range within 150 NM of MHAFB

The area within a 150 NM radius of MHAFB includes portions of western Oregon, northern Nevada, and most of Idaho, excluding the northern and eastern regions of the state. A range located within 150 NM of MHAFB would meet be economically and operationally feasible for aircrew training. In addition, since much of this area is sparsely populated, a range with expanded capability could be developed at several locations without adversely impacting major population concentrations. However, many potential locations are restricted, as explained below.

NORTH. Locating a range within 150 NM north of MHAFB would place target areas in mountainous terrain including the Sawtooth Range, encompass a large amount of private land within the suitable terrain available, and conflict with at least five airways: V253, V4, V293, V330, and V444-500.

SOUTH. Developing an expanded range capability south of the SCR as far as the Nevada border is feasible. However, developing a range and associated airspace in Nevada would conflict with a sense of the U.S. Senate resolution attached to the Defense Appropriations Bill prohibiting further military land and airspace withdrawal in Nevada for the next several years. Consequently, development of a new or expanded weapons range in Nevada is not feasible.

EAST. This option would place target areas near Buhl, Jerome, Twin Falls, Kimberly, Gooding, Wendell, Shoshone, Castleford, and other towns. Other factors include Interstate Highway 84, Highway 93, and other major roadways, the Snake River, a power plant, and power lines. Also, it would interfere with airports at Buhl, Jerome, Twin Falls, Gooding, and others. Additionally, there are at least five airways traversing the area. They include V253, V293, V4, V484, and V444. This option would affect a large amount of private land and conflict with a numerous established population areas and facilities.

WEST. This option would place targets in the vicinity of the Snake River and into eastern Oregon. Building a new range in southwestern Idaho west of the current range and Highway 51 is viable. However, this option would disrupt the integrity of the needed scenario (see section 1.1.2.2) since the target areas would be geographically separated by land not owned or controlled by the Air Force. Essentially, the Air Force would have to operate two separate ranges at already increased cost. In addition, there are numerous airways traversing the area in eastern Oregon located within 150 NM of MHAFFB. Consequently, locating an expanded range capability in eastern Oregon and the Snake River is infeasible.

As indicated above, locating a large contiguous range and developing new MTR, MOA, and restricted airspace in most areas within 150 NM of MHAFFB is not feasible due to potential conflicts with civil airspace, unsuitable terrain, and the need for realistic training. The most feasible location for an expanded range capability is the southwestern portion of Idaho, where existing airspace is available.

Expanding Range Capability in Southwest Idaho

Under this alternative, an area of approximately 65 by 50 NM would be controlled by the Air Force and may include the approximately 110,000 acres that constitutes the SCR. The area under study for expansion is identified in Figure 2.1-6. The expansion area could be contiguous with the SCR. This proposal best satisfies Air Force intermediate requirements and the criteria set forth to meet those requirements. Additionally, this proposed expanded range capability would establish the flexibility to accommodate unknown long-term requirements. The proposal would provide the capacity to accommodate the approximately 13,600 required 30-minute range periods and the flexibility for joint use. If any point on the proposed range with expanded capability would be within 80 NM of MHAFFB, it would allow MHAFFB aircraft to use the range on a daily basis and achieve the most effective level of

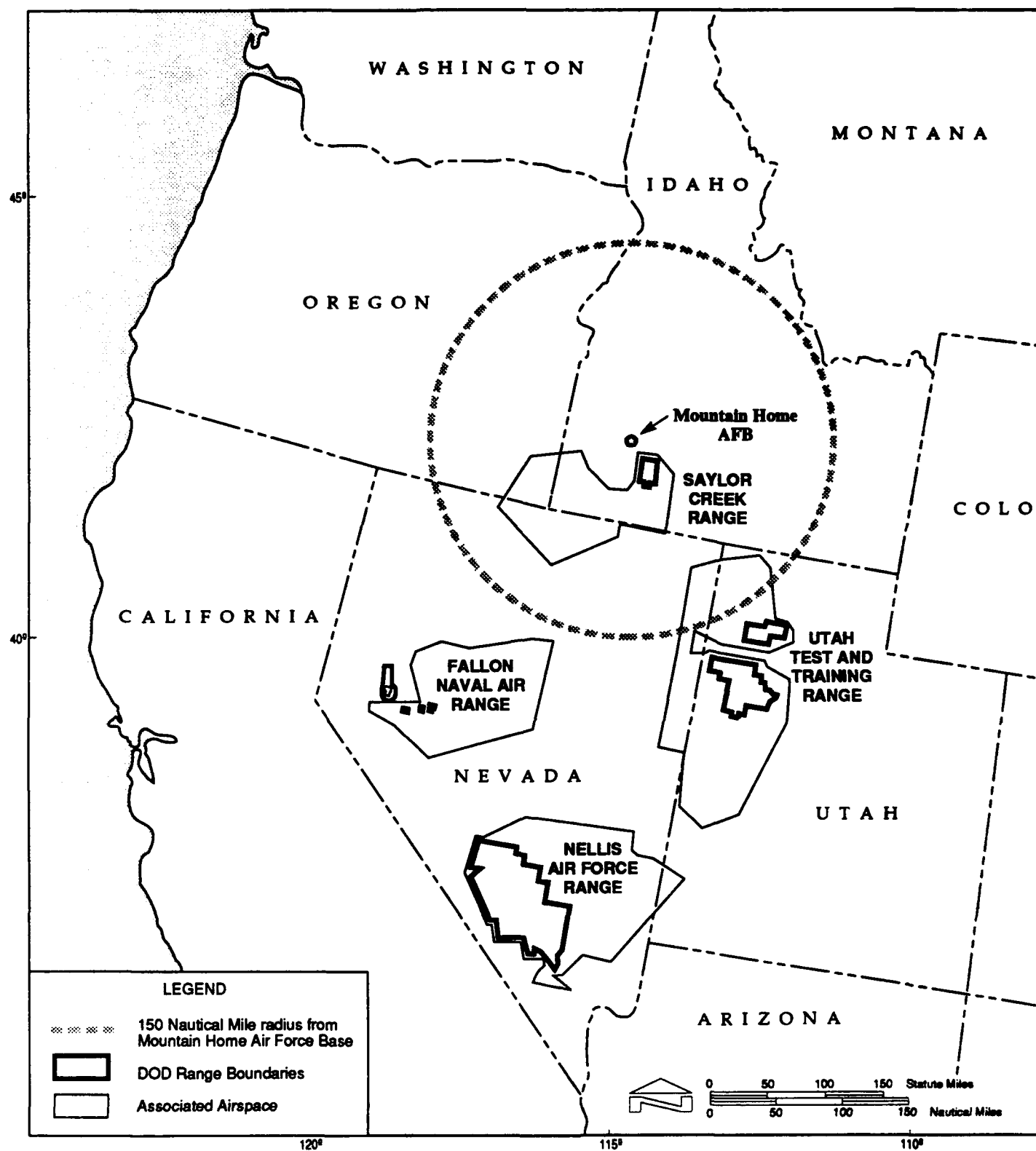


Figure 2.1-5
ALTERNATIVE RANGES AND ASSOCIATED AIRSPACE

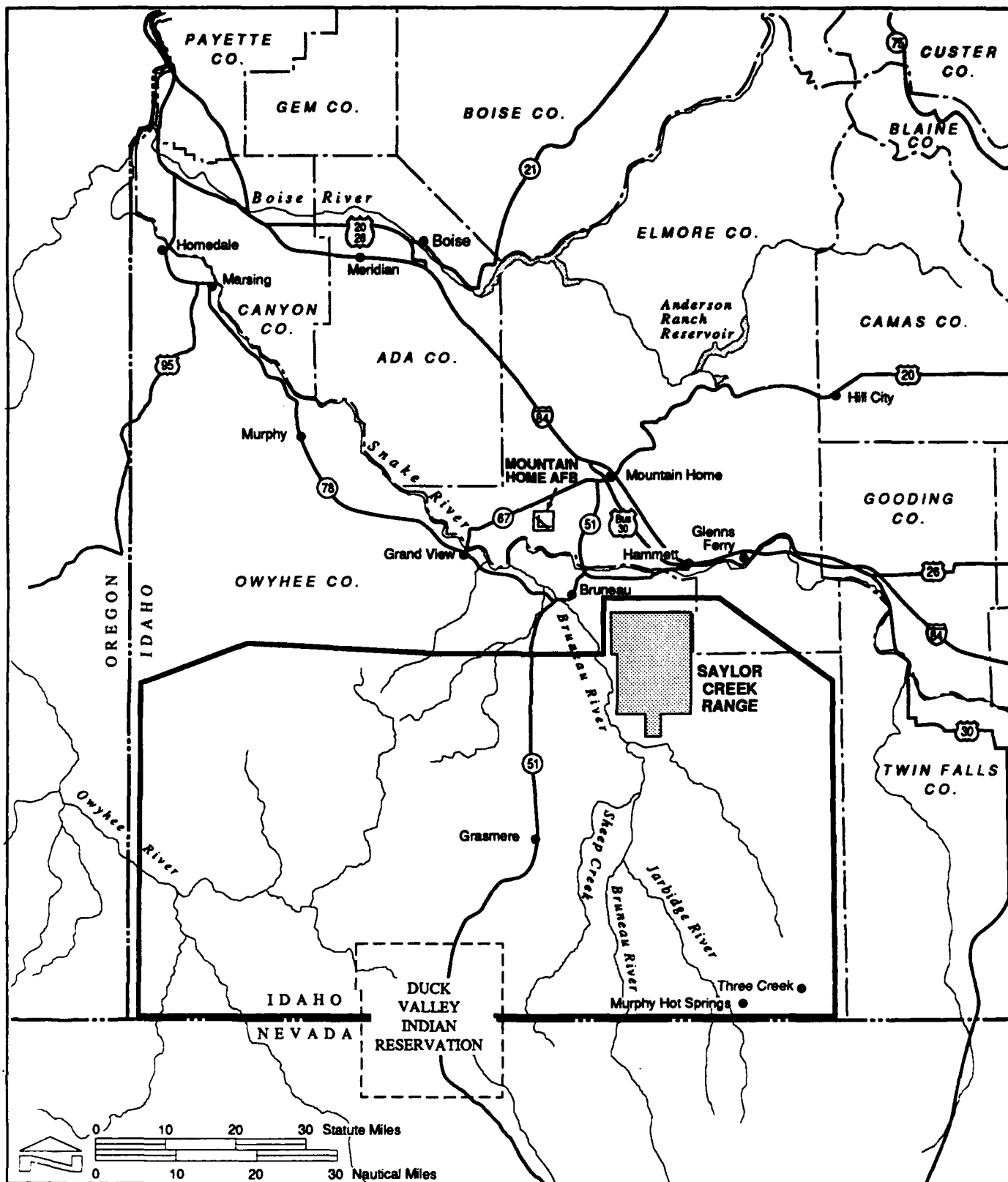


Figure 2.1-6

STUDY AREA FOR PROPOSED EXPANDED RANGE CAPABILITY

training. No conflicts with established civilian airways exist. The area is sparsely populated, which allows flexibility and has minimal effect on existing civilian activities. Realism, particularly within the tactical/electronic combat ranges, would also be satisfied.

A 1987 analysis of war fighting skills conducted within TAC revealed the training most needed was in the areas that an expanded range capability would provide -- practicing real-world tactics and threat reactions (see Appendix B). TAC aircrews were asked what areas of their training environment they considered to be less than adequate. The area most cited was reactions to threats, either physically moving the aircraft, or using some type of countermeasures. To survive in high-threat environments, aircrews require regular practice as close to a real combat environment as possible. In such an environment, aircrews are required to sort through numerous threat signals, determine the most threatening and the most appropriate reaction among several possibilities, then perform the reaction. All this must take place within a split second while staying in flight formation, navigating (often at low altitude), finding the target, and attacking it successfully. An expanded range capability could provide the space, with the variety of targets, and the spatial relationships needed to conduct this type of necessary realistic training.

Considering mission needs both present and future, an expansion of range capability in southwest Idaho best meets established criteria and best satisfies overall Air Force requirements.

2.1.3.4 No-Action Alternative

Introduction

The realignment of the 35 TFW to MHAFB was recommended by the Secretary of Defense's Commission on Base Closure and Realignment as one of a series of actions designed to increase operational efficiency and thereby decrease operational costs throughout the DOD. The Commission and the Congress intended that the F-4 training mission should continue following the realignment. For that to occur, F-4 aircrews must fly on a range and its associated airspace for their training. Under the no-action alternative, an expanded range capability would not be implemented, and aircrews based at MHAFB would have to utilize current range capability.

Training Scenarios Without an Expanded Range Capability

The SCR is the only usable range within 150 NM of MHAFB and does not, in its present configuration, possess the needed capacity for the short-, intermediate-, or foreseeable long-term training needs for Air Force aircrews. Further, the small size of the SCR does not permit required scenario development and the conduct of realistic CFT.

To identify a means by which the range could be used without acquiring additional property, a scenario was developed in which the existing target area would be reconfigured into an eastern and western half. Pilots would ingress the range from the south and would turn east or west as they left the range (depending on which side of the range they were on) after dropping practice munitions on the targets. This would effectively double the current range's capacity without requiring any additional land. The two parallel courses would be scheduled differently in order to separate the aircraft as much as possible. However, since most of this training would involve student pilots who are learning how to operate the aircraft, their timing would not be precise. In a worst case scenario, it is possible that two student aircrews could end up flying parallel to each other on courses 300 feet apart at 450 miles per hour. Training in this scenario would result in a high potential for aircraft mishaps.

In addition to the operational and safety difficulties mentioned above, the limitations imposed by this range configuration (e.g., the obvious requirement for the pilots to pull out from every delivery on the targets in a sharp left or right turn) would substantially degrade training realism.

Any other approach to meet short-term training requirements would require some modification of the SCR.

To meet F-4 and F-111 requirements, 225 conventional range use days and 190 tactical range use days are assumed to be available. These projected use days are extracted from the current and forecast MHAFB programmed flying training (PFT) weather calendar based on historical data and operational experience. The PFT calendar provides a baseline number of flying days for planners to use in developing training programs and forecasting flying hour projections. Based on 12 hours of range operation per day with 30-minute range periods, 5,400 conventional range periods and 4,560 tactical range periods would be available. Experience shows that scheduling effectiveness is approximately 85 percent due to aircraft maintenance problems and adverse weather at the departure base, among others. The effective utilization rate for flights that reach the range is approximately 75 percent due to adverse weather, weapons systems malfunctions, and unacceptable bombing scores. As such, 3,443 conventional range periods will be available to accomplish the projected 3,368 annual conventional range period requirements. These range periods could be effectively met on the current SCR conventional target array. For the tactical range requirements, 2,907 periods are available to accomplish the 5,463 projected tactical range periods. This would require two tactical ranges to fulfill all the projected tactical requirements. The current SCR has one tactical target array and as such prevents simultaneous use of both target arrays.

Workarounds to accomplish these range requirements, although not optimum for training objectives, could be implemented to accomplish all of the F-4E/G and EF-111 tactical electronic combat requirements in one of the overlying MOAs. This training would be against radar emitters located on the current SCR but at an altitude and distance that would provide safe clearance from aircraft flying

on the current conventional or tactical bombing pattern. Also, additional emitters could be placed at various locations in the MOAs where none currently exist. To accomplish the remaining tactical requirements (1,738 periods) the existing SCR impact area could be expanded enough to accommodate a second tactical array located in such a position as to allow safe, simultaneous use of the current conventional target array and the new tactical target array. A small number of the tactical period requirements (approximately 75) could also be accomplished when the conventional target array is not in use (2 percent of the total available conventional target range period availability).

If the second tactical target array could not be developed, some of the tactical range period requirements could be accomplished at other range complexes. If these requirements were not accomplished, there would be conflict with current training directives.

Environmental Impacts of the No-Action Alternative

In contrast to the environmental impact analysis of the realignment, a no-action alternative to a proposed expanded range capability must be addressed. The environmental impacts associated with no-action are addressed in Chapter S-4 at the end of the impact assessment section for each environmental resource. Since no action means no expansion of range capability, the environmental impacts of the no-action alternative are assessed with respect to flight operations required to train using a reconfigured (split between east and west halves) target area. This represents a worst case analysis since the concentration of flights into a very small area maximizes potential impacts. If a new range were developed or the existing range were expanded, the separation of targets would be much greater and many of the impacts would be lessened.

PRELIMINARY DRAFT
IN HOUSE REVIEW ONLY
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Appendix B

REQUIREMENTS AND ALTERNATIVES ANALYSIS AND DEFINITIONS

Appendix B

Requirements and Alternatives Analysis and Definitions

1.0 RANGE DEFINITIONS

PRELIMINARY DRAFT
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1.1 CONVENTIONAL RANGE

A conventional range is an air-to-surface range that is specifically constructed for teaching and practicing air-to-surface gunnery techniques in a highly controlled environment. A conventional range contains bulls-eye targets and manned range towers for scoring and safety. During range activity, bombing scores are provided to aircrews immediately, in order to give the aircrews the opportunity to improve their bombing accuracy. Only training/inert ordnance would be dropped on this range.

1.2 TACTICAL/ELECTRONIC COMBAT RANGE

A tactical/electronic combat range is a range constructed to simulate a portion of a battlefield. These ranges are normally unmanned and scores may be provided by automated means but feedback is delayed. A tactical/electronic combat range allows aircrews the opportunity to sharpen skills learned on a conventional range in a more realistic environment. A significant portion of a tactical/electronic combat range is an array of threat simulators. These simulators provide electronic signals that are associated with the types of threats an aircrew would expect to encounter in combat, such as surface-to-air missiles, anti-aircraft artillery, or even enemy aircraft. On a tactical/electronic combat range, aircrews practice threat evasion and reaction. Normally, training/inert ordnance is dropped on this type of range, although live ordnance can be used in designated areas.

2.0 TARGET AND THREAT SPATIAL RELATIONSHIP DEFINITIONS

2.1 FORWARD EDGE OF THE BATTLE AREA (FEBA)

The FEBA is the area where opposing forces are in contact. A typical FEBA covers an area from 2 to 10 miles deep and up to hundreds of miles in width. FEBA targets will generally include troops in contact, tanks, tactical armor formations, artillery, and mobile air defense systems. Associated with these targets would be the various electronic emitters that accompany the mobile surface-to-air missiles (SAMs) and anti-aircraft artillery (AAA) threats.

2.2 BATTLEFIELD AIR INTERDICTION (BAI)

The BAI area is generally defined as that area immediately behind the FEBA and extends to the furthest point of influence by ground forces. This distance is usually defined by the range of supporting artillery and other surface-to-surface weapons. A typical BAI target area may extend anywhere from 10 to 50 miles beyond the FEBA. BAI targets will generally include convoys, trains, bridges, bunkers, marshalling areas, depots, and lines of communication. These targets will be heavily defended by concentrated SAMs, AAA, and enemy aircraft with overlapping fields of coverage.

2.3 DEEP INTERDICTION

Behind the BAI area and extending as far as aircraft can reach is the deep interdiction strike target area. This deep interdiction area may extend several hundred miles beyond the FEBA and contains mostly strategic targets. These high value targets are heavily defended by fixed and mobile SAMs, AAA, multiple radars, and aircraft.

It is imperative for realistic aircrew training to array the range complex with defense in depth, i.e., two areas of primary enemy defenses before reaching the deep targets. Such a complex provides visual and electronic realism to an aircrew. When the above three areas are combined, an aircrew would fly over (penetrate) the FEBA area first, the BAI area second, and then the deep interdiction area to bomb the enemy high-value target.

3.0 FUEL CONSIDERATIONS

The following scenario illustrates the fuel considerations of F-4 aircraft operating from MHAFB on a range other than SCR (see Appendix A for a detailed description of the F-4). The UTTR is used as the example since after SCR, it is the closest usable range to MHAFB. The distance to the Eagle Range at UTTR is 173 NM of direct flight. This example does not include the additional distance and time that would be incurred by using airways, range entry procedures, and holding for clearance into the UTTR.

Aircraft Configuration: One MER (centerline) with 6 BDU-33 practice bombs, two TERs (inboard stations) with 3 BDU 33 each, two external wing tanks, ALE 40 chaff and flare dispensers mounted on inbound pylons.

Gross Weight: 50,625 lb.

Drag Index: 42.1

	<u>Pounds</u>	<u>Gallons</u>
Beginning fuel load	16,870	2,800
Fuel used in start, taxi, takeoff	1,900	300
Fuel to climb to 20,000 feet AGL	870	150
Fuel remaining at level-off	14,100	2,350
Fuel to fly remaining 171 NM (after level-off)		
at 420 KTAS (25 minutes)	3,100	500
Fuel remaining at range	11,000	1,850

Because of the distance from the UTTR to MHAFB, F-4s would be required to depart the range with enough fuel to return safely to MHAFB or to be able to divert and land elsewhere if landing at MHAFB is precluded. Therefore, fuel required at departure from UTTR is estimated to be 6,000 to 9,000 lbs (1,000-1,500 gallons). Weather conditions are the major determinant for the fuel needed at range departure. This requirement allows from 2,000 to 5,000 lbs (350-800 gallons) of fuel to conduct operations on the range. That translates to 10 to 20 minutes of range time.

	<u>Pounds</u>	<u>Gallons</u>
Fuel remaining on range	11,000	1,850
Required fuel reserve	2,000	325
Fuel for return to MHAFB	4,000	675
Fuel needed at range departure	6,000	1,000
Fuel available on range (best case)	5,000	850
Variable for weather		
(added to range departure fuel)	3,000	500
Fuel available on range (worst case)	2,000	350

4.0 COMPUTATIONS FOR DEPLOYING FROM MHAFB TO NELLIS AFB FOR RANGE TRAINING

The following is a summary of the major costs required to deploy and maintain one F-4 squadron (24 aircraft) at Nellis AFB, Nevada. Nellis AFB was selected as an example because of its access to both electronic and air-to-surface gunnery ranges. Further, based on historical data, some range time would be available. The George-based F-4 aircraft used 1,646 Nellis range periods in fiscal 89. The figures that follow are based on deploying/maintaining a squadron size detachment at Nellis for one year with a rotation of personnel back to MHAFB every 60 days.

A squadron operation requires the following numbers of personnel.

294 General/specialized maintenance enlisted personnel
plus
6 Operations enlisted personnel
equals
300 Total enlisted personnel

5 Maintenance officers
plus
62 Rated officers (aircrew members)
equals
67 Total officer personnel

300 enlisted plus 67 officers equals 367 total personnel

Deployment Costs. To transport the above personnel and associated maintenance support equipment to Nellis would require eight C-141 aircraft airlift missions. The average cost per C-141 mission is \$10,909; the eight C-141 missions would cost \$87,272.

Twenty-four F-4 aircraft would require transfer to Nellis to initiate flying operations. Flying time from MHAFB to Nellis is approximately one hour. Cost per flying hour in the F-4 is \$2,945. As a result, the total cost of the transfer would be:

24 F-4 hours multiplied by \$2,945/hour = \$70,680

Total Deployment Costs = \$157,952

Monthly Personnel Operating Costs. Since personnel would be permanently assigned to MHAFB and temporarily operating at another location, the Air Force is required to provide additional pay and allowances to offset temporary living expenses. Enlisted personnel are reimbursed \$5.30 per day for per diem and lodging expenses, and officers receive \$34.00 per day for per diem and lodging. All personnel would also receive a family separation allowance of \$60.00 per month while deployed to Nellis.

300 Enlisted personnel at \$5.30 per day = \$1,590.00

\$1,590.00 multiplied by 30 days = monthly cost of \$47,700.00

67 Officer personnel at \$34.00 per day = \$2,278.00

\$2,278.00 multiplied by 30 = monthly cost of \$68,340.00

Monthly family separation allowance for 367 personnel at \$60.00 per month =
monthly cost of \$22,020.00

Total Monthly Personnel Costs: \$138,060.00

Personnel Rotation Costs. Every two months all personnel at Nellis would be replaced by another squadron of personnel from MHAFB. A rotation would require three C-141 airlift flights to accomplish the change over from MHAFB to Nellis and three from Nellis to MHAFB. Considering a one year period, five such rotations would be required thirty C-141 flights at \$10,909 per flight equals the yearly cost of personnel changeovers (\$327,270.00).

Consolidation of the figures given above results in an estimate of annual costs for deploying a squadron of F-4s to Nellis AFB as follows:

Deployment	\$87,272
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Annual personnel temporary duty costs (\$138,060.00 monthly cost multiplied by 12 months)	\$1,656,720
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Personnel rotation costs	\$327,270
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Total Nellis Cost per Year (above normal operating costs)	\$2,071,262
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5.0 COMPUTATIONS FOR UTILIZING INFLIGHT REFUELING TO INCREASE RANGE TRAINING TIME (A COMPARISON OF THE COSTS OF USING THE SCR AND USING AIR-TO-AIR REFUELING TO FLY AT UTTR)

Because the UTTR is substantially farther from MHAFB, the operational costs of training at UTTR will be significantly greater than the costs of using to the SCR. The additional costs are attributable to the increased flight time and the inflight refueling support. An F-4 sortie from MHAFB to the SCR requires a total flight time of 1.4 hours for a round trip. The 1.4 hours of flying time includes 30

minutes of area training time. To accomplish 30 minutes of area training on a sortie to UTTR, a total flight time of 2.4 hours would be required if inflight refueling is used. This also takes into account the additional 320-mile round trip. Whereas missions to the SCR could be flown without inflight refueling, each sortie to UTTR airspace would require aerial refueling either en route to or from the area to accomplish 30 minutes of area training time. One KC-135 refueling aircraft could provide enough fuel to support three F-4 missions to UTTR. If the number of missions from MHAFB that are unable to obtain range time on the SCR (16 per day). Six KC-135 refueling aircraft (or equivalent KC-10) would be required per day. The total flight time for each KC-135 mission would average approximately five hours. Using fiscal year 1990 costs per flying hour figures for the F-4 and KC-135, Table B-1 summarizes the daily operating costs for each range.

6.0 SUMMARY OF AIRCREW RATINGS

A summary of aircrew ratings pertaining to requirements is provided in Table B-2. Definitions for terms used in the table are:

REACTIONS: Reaction to SAMs, AAA, or air-to-air interceptors (AIs). Reaction to these threats deal with rapidly changing the aircraft flight path to avoid being fired upon or to avoid any projectile that may be or has been fired at the aircraft. The aircrew would need to see the threat, either visually or otherwise, determine the type of threat, then take the proper action.

EMPLOYMENT: Employing electronic counter measures (ECM) or employing chaff or flares. One type of reaction to a threat (or threats) is the use of ECM or chaff and/or flares. ECM is the use of electronic signals to defeat the radar(s) associated with SAMs, AAA, or AIs. Further, the crew is required to use a specific electronic signal against a specific threat. Similarly, chaff can be used to defeat radars. Chaff is small pieces of foil-type material released by the aircraft that deceives the enemy radars. Flares are released from the aircraft to foil enemy heat seeking missiles. Often ECM, chaff, and flares are used in conjunction with a reaction. In all cases, the crew must evaluate the threat to determine proper countermeasures or reaction.

RWR EMPLOYMENT: Most fighter aircraft employ a radar warning receiver (RWR). This device is much like a radio receiver that allows the crew to receive a warning signal of any radar that is pointed at the aircraft. Through practice, the crew can distinguish the type of threat that they encounter, based on the radar signal associated with a threat, and can respond with ECM, chaff, flares, physical reaction, or any combination thereof.

Table B-1

COSTS REQUIRED TO ACCOMPLISH RANGE TRAINING

	SCR	UTTR
1. Number of F-4 sorties	42	42
2. Number of F-4 flights at 3 aircraft per flight	14	14
3. F-4 flight time per sortie	1.4	2.4
4. Number of KC-135 refueling aircraft required to support daily F-4 flights to areas	N/A	5
5. KC-135 flight time per mission	N/A	5
6. F-4 cost per flying hours (FY 90)	\$2,945	\$2,945
7. KC-135 cost per flying hour (FY 90)	N/A	\$2,400
8. F-4 cost:		
a. F-4 operational cost per range sortie (line 3 multiplied by line 6)	\$4,123	\$7,068
b. Total daily F-4 cost to obtain range training (line 1 multiplied by line 3a)	\$173,166	\$296,856
9. Refueling support costs:		
a. Cost per KC-135 mission (line 5 multiplied by line 7)	N/A	\$12,000
b. Number of KC-135 missions required per day (line 4)	N/A	5
c. Total daily refueling cost (line 9a multiplied by line 9b)	N/A	\$60,000
10. Total daily F-4 and KC-135 cost to conduct range training (line 8b plus line 9c)	\$173,166	\$356,856
11. Cost per F-4 sortie for 30 minutes of range training time (line 10 divided by line 1)	\$4,123	\$7,068

Table B-2
AIRCREW TRAINING NEEDS

	<i>All Aircraft Types (485 responses)</i>	<i>F-4 Only (174 responses)</i>
REACTION		
Reaction to SAMs	366 (75%)	134 (77%)
Reaction to AAA	375 (77%)	138 (79%)
Reaction to AIs	267 (55%)	117 (67%)
EMPLOYMENT		
Employ ECM	362 (75%)	130 (75%)
Employ Chaff/Flares	291 (60%)	48 (28%)
RWR ASSESSMENT	245 (51%)	102 (59%)
LOOKOUT		
Visual Lookout	205 (42%)	88 (51%)
Radar Lookout	171 (35%)	54 (31%)
MISSILE EMPLOYMENT	192 (40%)	60 (34%)
TACTICAL FORMATION	39 (8%)	18 (10%)
MUTUAL SUPPORT	118 (24%)	74 (43%)

Source: Survey administered as part of TAC War Fighting Skills Analysis, 1987.

LOOKOUT: Visual or radar lookout is accomplished either visually or by the onboard aircraft radar. Lookout involves maintaining formation, finding an assigned target, or finding a potential adversary. Lookout techniques, either visual or with radar, must be continually practiced.

MISSILE EMPLOYMENT: Properly employing air-to-air missiles involves flying skills, knowledge of the aircraft, missile, and the adversary. Proper employment means maneuvering an aircraft to arrive at a position where a missile can be fired with a high probability of success.

TACTICAL FORMATION/MUTUAL SUPPORT: In combat, several aircraft flying in proper formation can provide a higher probability of success than a single aircraft. A formation implies flying an aircraft in a position that helps another aircraft in the formation (usually through improved lookout or multiple weapon employment). A formation usually provides mutual support to survive or accomplish the mission through whatever means available.